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THESIS

**STUDY OF NAVY ENLISTED ATTRITION: RACE,
ETHNICITY, AND TYPE OF OCCUPATION**

by

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September 2008

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OF OCCUPATION**

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I. INTRODUCTION

A. BACKGROUND

The United States military is an all-volunteer force comprised of people from all walks of life. It is this diversity that gives the U.S. military its robust nature. Like all other branches of the military, the Navy is forced to achieve more with less. As operating budgets decrease, the Navy must continually strive to operate more efficiently. Even with shrinking budgets, the Navy is still chartered to perform its function as the sea service of the Department of Defense (DoD). Its primary mission is to maintain, train and equip combat-ready naval forces capable of winning wars, deterring aggression and maintaining freedom of the seas. The Navy can achieve this objective only through its investment in human capital.

The Navy's most valuable resource is its sailors. Recruiting sufficient numbers to fill the end-strength requirements of the U.S. Navy continues to be a top priority. Each year, the Navy spends an enormous amount of its budget on advertising and recruitment. Recruitment encompasses the time, energy and funds spent to bring in qualified applicants, write enlistment contracts, medically screen them, and ship them to basic training, as well as getting them through the first eight weeks of training. This initial phase is only the beginning of the journey that new recruits will take during their first contract period (normally a four-year commitment).

An ongoing personnel problem in the Navy is that of attrition. The Navy defines attrition as the failure of an individual to complete his or her initial contract. Research indicates that the largest loss of personnel occurs within the first six months of service.¹ The Navy must handle this attrition with care to ensure adequate manning levels within the fleet and its shore stations around the world. Attrition continues to be a hot topic of discussion in Congress because it is costly for the Navy and the other service components to process new recruits and train them to become effective members of the Armed Forces.

B. PURPOSE

The primary purpose of this study is to compare attrition in the Navy in technical and non-technical occupations (ratings) among racial/ethnic minorities. Previous studies have determined that race and racial/ethnic background have a significant effect on attrition in the Navy. This study seeks to determine if assignment to a technical versus a non-technical rating has a bearing on first-term attrition behavior among minority enlistees. The study covers the period from calendar years 1996 through 2000.

C. WHAT IS FIRST-TERM ATTRITION?

First-term attrition is the term used to indicate failure of a non-prior service member, for various reasons,

¹ GAO Report to Congress, Military Attrition: DoD Could Save Millions by Better Screening Enlisted Personnel NSIAD-97-120 (Washington, D.C.: General Accounting Office, 1997).

to complete his or her initial enlisted contract. A large majority of first-term attrition occurs during the basic-training phase.

The services report that many recruits fail to complete basic training because of medical reasons. These reasons include, but are not limited to, injuries, previously undisclosed physical or mental conditions, and other performance-related issues.²

A variety of other reasons can explain why a service member may be discharged from active duty prior to the end of an initial contract. Because basic training is a controlled atmosphere, some of the issues service members face in their initial transition into the military will not apply once they are assigned to their permanent duty stations. Separation can occur during basic training due to causes that include: conscientious objection, imprisonment, desertion and parenthood.

Some additional reasons for attrition are more likely to emerge after basic training is completed. These may include civil involvement, peer pressure, dependency /financial hardship and behavioral/performance issues due to outside distractions. Many of these issues do not arise during basic training because recruits undergoing basic training are told what to do and how to do it and, as a result, outside influences are limited.

D. WHY STUDY FIRST-TERM ATTRITION?

There are two key reasons to study first-term attrition and understand its effects on the U.S. military

² About.com:U.S. Military, <http://usmilitary.about.com/od/joiningthemilitary.htm> - March, 2007.

and its readiness. First, attrition creates a severe monetary hardship for the military. Second, it reduces military readiness in the form of diminished human capital.

1. Monetary Cost

There are enormous costs associated with training and maintaining readiness within the U.S. Navy. The Navy continues to accomplish more with less as its portion of the federal budget declines. Operational commitments for the Navy continue to grow as the military engages in the Global War on Terror. The estimated cost for recruiting and training an individual through basic training is between \$9,400 and \$13,000 per recruit.³ The military services' investment in military recruit acquisition and training is enormous since more than 200,000 youths are recruited for active military service each year.⁴ Because first-term attrition extends up to the point of completion of a full contract, the resources saved in reducing first-term attrition can be great. These saved resources could then be reapplied to other areas in need of funding.

2. Readiness

Human capital remains the most important resource of the military services. The Navy relies on its personnel to obtain the necessary skills to accomplish its mission. The former Chief of Naval Operations (CNO), Admiral Vern Clark, has stated: "Mission first, Sailors always." The current CNO, Admiral Roughhead has said, "The men and women of the

³ GAO Report to Congress, Military Attrition: DoD Could Save Millions by Better Screening Enlisted Personnel NSIAD-97-120. (Washington, D.C.: General Accounting Office, 1997.)

⁴ About.com:US Military, <http://usmilitary.about.com/od/joiningthemilitary.htm> - March, 2007.

United States Navy, sailors all-active, reserve, and civilian—are its lifeblood." These two leaders continue to reemphasize the importance of manpower to the success of the Navy. Since manpower is our most precious and expensive asset, finding the best way to manage it is beneficial to the Navy and the taxpayers to whom it provides services.

The Navy, much like its other service counterparts, designs its recruiting efforts to place the right sailor, with the right skills, in the right job. To accomplish its mission, the Navy must carefully screen applicants to ensure that they meet its qualifications. As noted in a 1981 DOD report to Congress:

Any large organization, military or civilian, with a great diversity of jobs must solve the complex problem of providing a continuous supply of new personnel to fill job vacancies. It is not sufficient merely to provide people with certain minimum qualifications for a variety of jobs. Applicants have different characteristics and that may qualify them for one job but not another. To maximize production and efficiency, all large organizations screen their applicant pool to determine a person's suitability for particular jobs and to select an effective person-job match. In the case of the military, individuals must be enlisted who possess qualifications to meet skill requirements that are dynamic and change over time. ⁵

E. BENEFITS OF THIS STUDY

It is important to understand the reasons why people enlist and remain in the service. Studying racial/ethnic minority attrition rates will assist the Navy in its future endeavors to keep a well-balanced and diverse work force.

⁵ Department of Defense, Efforts to Develop Quality Standards, 7.

Understanding attrition among racial/ethnic minorities can assist in understanding overall attrition. It is in the Navy's best interest to continue striving to control attrition and the costs associated with it.

F. ORGANIZATION OF THE THESIS

Chapter II presents background information and a review of the literature on first-term attrition in the military. It should be noted that this study picks up where a previous thesis study on attrition rates, conducted in March 1997 by Emilson M. Espirtu, left off. It expands the scope to examine attrition among minorities based on whether they are assigned to a technical or non-technical job (or rating) in the United States Navy.

Chapter III discusses the methodology used in this study. Chapter IV presents the results of the data analysis, and Chapter V offers conclusions and recommendations drawn from this study.

II. LITERATURE REVIEW

This chapter provides the reader with background on the topic of attrition and the ways it has been analyzed in past studies. In addition to reviewing past studies on attrition, this chapter presents findings on the representation of racial/ethnic minorities in the military; examines demographic trends in the U.S. workforce and the military; and explores the reasons that racial/ethnic minorities choose to serve in the armed forces

In 1995, racial/ethnic minorities accounted for about one-third of the military's enlisted force. This compares with less than 30 percent of the military in the 1980s and approximately 26 percent of the national population between the ages of 18 and 44 years.⁶ From 1980 to 2002, the proportion of minority members increased from 23.2 percent to 35.8 percent.⁷ This is a significant increase, from less than one-quarter of the force to over one-third in a little over twenty years.

A. MILITARY REPRESENTATION

Minority representation in the military tends to increase as the racial/ethnic minority population increases among the U.S. population. Eitelberg states, "[T]he American population, the size of the force, and numerous other factors can have a direct bearing on the demographic

⁶ Emilson M. Espirtu, Study of First-term Attrition Among Racial/Ethnic Minorities in the Navy, Master's thesis (Monterey, CA: Naval Postgraduate School, 1997).

⁷ Mark Adamshick, Social Representation in the U.S. Military Services, Circle Working Paper 32, May 2005.

composition of the armed services.”⁸ Table 1 shows the percentage of enlisted personnel on active duty compared with the national population in 2002. As noted in the table, African American and the “Other” category, which encompasses Native Americans, Asians, Pacific Islanders and unknown, are both overrepresented among active-duty accessions. This snapshot covers only the age group between 18 and 24, which makes up the majority of enlisted personnel on active duty.

Table 1. Percentage of Enlisted Personnel (Age 18-24) on Active Duty Compared with National Population 2002

	White	African American	Hispanic	Other	Total Minority
DOD pop	61.2	21.8	10.0	7.0	38.8
U.S. pop	68.8	13.1	13.3	4.8	31.2

Source:<http://www.dod.mil/prhome/popprep98/html/overview.html>

Table 1 compares DOD population with the U.S. population and clearly exhibits exactly what Eitelberg states, that the demographic composition of the American population has a direct bearing on the demographic composition of the military. The DOD population is very similar to the U.S. population, with the exception that African-Americans are overrepresented in the DOD. This overrepresentation has been present for quite a number of years and is discussed in the majority of the previous works on attrition. Table 2 shows the upward trend of minority representation in DOD over a twenty-two year span

⁸ Mark J. Eitelberg, “The All-Volunteer Force After Twenty Years”, in Professionals on the Front Line: Two Decades of the All-Volunteer Force, ed. J. Eric Fredland, Curtis Gilroy, Roger D. Little, and W.S. Sellman (Washington, DC: Brassey’s, 1996), 82.

from 1980 to 2002. In just over 20 years, DOD has seen an overall increase in minority representation of 48.9 percent.

Table 2. Percentage of Minority Enlisted Personnel on Active Duty, by Total DOD trends: Selective Years, 1980-2002

Year	Percentage	
	Minority	
1980	25.9	
1985	25.0	
1990	28.2	
1995	28.2	
2000	38.2	
2002	38.8	

Source: <http://www.mfrc-dodqol.org/stat.cfm>

B. WHY DO RACIAL/ETHNIC MINORITIES JOIN THE MILITARY?

Many minorities and recent immigrants to the U.S. view the military as steady, honorable employment, offering "generous" fringe benefits and opportunities for occupational training, as well as money for college. A variety of reasons explain why minorities join the military. While it is highly likely that each minority group places a different emphasis on these reasons, the reasons for joining the military remain relatively the same across minority groups.

1. Opportunities

"The opportunity of a lifetime" is what one might hear from a recruiter trying to convince a young man or woman that the military is an opportunity that does not present itself often. Over the years, the military has presented

itself as a good career option to those who might have otherwise become a "statistic". Violence, gangs, drugs and alcohol plague the streets and neighborhoods that so many minorities call home. For this reason, many minorities feel that more opportunities exist for them in the military than in the civilian sector. The opportunities that the military offers are often viewed as a means to middle-class status. The League of United Latin American Citizens, a high-profile Latino organization, says that they view military service as an important path to socioeconomic advancement. According to Brent Wilkes, national director of the league:

The fact that Latinos are underrepresented in the service causes us concern because the service is often a way to the middle class for many immigrants. If you don't have a lot of options, would you rather go into the service and get a middle-class career, or stay in the fields all these years?⁹

Many racial/ethnic minorities use military service as a means of escape from negative influences, underprivileged upbringing, or a troubled past. Espirtu states that some racial/ethnic minorities may see the military as an alternative route to a better life or a "second chance" to rise out of an otherwise disadvantaged or "dead end existence."¹⁰ Many minorities leave for the military immediately following high school graduation, looking for a

⁹ Lizette Alvarez, "Army Effort to Enlist Hispanics Draws Recruits, and Criticism," The New York Times, February 9, 2006, 2.

¹⁰ Espirtu, 12.

fresh start. For many, these opportunities are an alternate choice to the gang or poverty-stricken life-style of the generations before them.

Some find military service rewarding and make it a career; however, for others, military service becomes a heavy burden or hardship that cannot end soon enough. Those who wind up regretting their decision to join the military or simply cannot adapt easily to military life are obviously at risk of not completing their first enlistment, thereby becoming a "first-term attritee."

2. Social Acceptance

Social acceptance is another reason why minorities join the military. Those who are recent immigrants look to demonstrate their sense of belonging and patriotism to their new country by joining the military.¹¹ The military observed this behavior from African-American minorities in the 1960s and 1970s around the end of the military segregation era. This behavior is a little different from the behavior observed in the Hispanic ethnic group today. Social acceptance is still important; however, it is the attitude of thankfulness that makes Hispanics more inclined to serve. Lt Col Jeffrey Brodeur, commanding officer of the Recruitment Battalion covering Colorado, Wyoming, and parts of Montana and Nebraska, states: "Many Latinos in the military are immigrants, or the children of immigrants, which typically engenders a sense of gratitude for the United States and its opportunities."¹²

¹¹ Richard L. Fernandez, Social Representation in the U.S. Military (Washington D.C: Congressional Budget Office, 1989).

¹² Lizette, 2.

3. Educational Opportunities

Education remains one of the top reasons why minorities join the military. Since the end of World War II, educational benefits have been available to qualified service members and veterans through various forms of what has become known as the "GI Bill." For example, in 2008, a new, "Post-9/11 GI Bill" was created to provide educational assistance for persons who served on active duty on or after September 11, 2001. According to the Department of Defense, the latest version of the GI Bill has an average estimated value of \$80,000, which is twice the level of the program it replaced.¹³ The military services also offer scholarships, college funds, and in-service tuition assistance that go well beyond these standard GI Bill benefits.

Education programs such as these continue to make military service an attractive alternative for those who desire to attend college, but do not otherwise have the financial means. As the global war on terror continues, incentives such as these will continue to be offered to entice young men and women to join the armed services. These will assist the services in ensuring that end-strength is maintained throughout this time of crisis.

4. Technical Training

Technical training is considered one of the greatest benefits that the military offers those who serve. Racial/ethnic minorities view this training as valuable and

¹³ Michael J. Cardin, "New GI Bill Provides Increased Educational Benefits," American Forces Press Service, Department of Defense, July 28, 2008.

seek to serve in order to receive the free training offered by the military. One reason they view this training as valuable is because it is provided at no cost to them. Comparing this option to the cost of attending formal training at a vocational school or community college, free training becomes a very attractive option. Training in the military is also accomplished in less time than it would take to complete formal training as a civilian. For those unable to afford post-high-school training, this is an opportunity to better prepare them for the future.

On-the-job training is another factor that carries a lot of weight when racial/ethnic minorities are considering the military as a career option. This is a chance to gain valuable work experience that would not otherwise be received from formal schooling. Trainees get a sense of pride and satisfaction from performing the job they were trained to do and making a difference in the process.

5. Travel

Travel has been a well-known benefit of military service for many years. The chance to visit foreign countries and experience unique cultures while serving one's country has long been an appealing reason for minorities to join the military. These travel opportunities are complementary to military service and may not otherwise be possible. Racial/ethnic minorities are able to travel under military orders to remote places throughout the world and receive additional benefits for accepting placement in certain areas. In most cases, the additional benefit is monetary for those who accept orders to overseas billets.

6. Retirement

Retirement is a subject that resides in the back of everyone's mind. Minorities are no different, and the military offers them a way to retire with dignity, as well as the resources that will assist them in living more comfortably later in life. A military career also allows one to have another career following retirement from the military. Someone who joins the military at age 17 is eligible for retirement in 20 years, at the age of 37. Few retirement plans allow a person to collect an annuity at such an early age. After retirement, many racial/ethnic minorities transition into federal or other civil service jobs, which eventually leads to a second retirement income.

Obtaining a trade and making a stable income in the process appeals to thousands of minorities each year and leads them to join the military service. These sentiments are echoed by each racial/ethnic minority group. General Colin Powell observes that minorities join the military for three reasons:

They come for the education. They come in for the adventure. They come in to better themselves.¹⁴

C. MINORITIES AND FIRST-TERM ATTRITION

Since the implementation of the All-Volunteer Force in 1973, first-term attrition continues to be a subject of concern. Many studies have been conducted and have yielded different results, depending upon the variables used in the particular study. Previous studies suggest that certain groups of racial/ethnic minorities are much less likely

¹⁴ Lynne Duke, "General Colin Powell Notes: Military Enlistment Remains a Matter of Choice," Washington Post, November 28, 1990, 5.

than whites to be discharged before completing a first-term of enlistment. This section reviews some previous studies and their findings.

1. The 1980s

A study conducted by Gardner in 1980 investigates the relationship between initial assignment and personnel background variables.¹⁵ The results showed that the first three months of active duty accounted for 7 percent of attrition and, of these losses, 9 percent were black. He also found that Filipinos had the lowest attrition rate for any racial/ethnic group, thereby leading him to conclude that racial/ethnic minorities in the Navy have lower attrition rates.¹⁶

In 1983, Flyer and Elster examined first-term enlisted attrition based on selected entry variables, such as service, gender, race, education level, age, marital status, Armed Forces Qualification Test (AFQT) scores, and area of residence.¹⁷ Attrition rate was calculated based on the number of personnel accessions versus personnel losses. Flyer and Elster sought to find a relationship among the entry-level variables and attrition. They concluded that black male enlistees had a higher attrition rate than did

15 Daniel E. Gardner, *The Relationship of Initial Assignment and Personnel Background Variables to First-Term Enlisted Attrition From the Navy*, Master's Thesis (Monterey, CA: Naval Postgraduate School, 1980).

16 *Ibid.*, 45.

17 Eli S. Flyer and Richard S. Elster, *First-Term Attrition Among Non-Prior Service Enlisted Personnel: Loss Probabilities Based on Selected Entry Factors* (Monterey, CA: Naval Postgraduate School, 1983).

their non-black counterparts. Conversely, black women tended to have lower attrition rates than did their non-black counterparts.¹⁸

In 1984, Richard Buddin conducted a more general study of attrition among first-term enlisted personnel. He described his research as follows:

This study assesses how background characteristics, prior work experience, and satisfaction with initial military job assignment influence attrition losses during the first six months of service. . . . This research compares and contrasts the determinants of early attrition with those of civilian job separations by young workers.¹⁹

Buddin's findings determined that, "for all services, not having a high school diploma was a major determinant of early attrition."²⁰ These findings brought about changes in the way the services recruited. Completing high school subsequently became a more important prerequisite than in the past. The Navy continues to prefer enlistees with a high school diploma over those with a General Educational Development (GED) certificate or non-grads.²¹ Table 3 exhibits the percentage of high school graduates that the Navy recruited in FY1995-FY1997. The percentages for all

18 Eli S. Flyer and Richard S. Elster, *First-Term Attrition Among Non-Prior Service Enlisted Personnel: Loss Probabilities Based on Selected Entry Factors* (Monterey, CA: Naval Postgraduate School, 1983).

19 Richard Buddin, *Analysis of Early Military Attrition Behavior*, R-3069-MIL (Santa Monica, CA: Rand Corporation, 1984).

20 Ibid.

21 US Navy Website
<http://www.navy.mil/navydata/testimony/personnel/mcgan0304.txt>

racial/ethnic minorities remain in the 90 percent range, peaking at 99.4 percent in FY1995 for Asian Pacific Islanders/Native Americans.

Table 3. Percentage of New Recruits in the Navy who are High School Graduates by Racial/Ethnic Group, Fiscal Years 1995-1997

Percent High School Graduates

New Recruits by Minority Group %HSDG	FY 95	FY 96	FY 97
African-American	96.2	97.1	96.8
Hispanics accessions	92.5	93.5	93.4
Asian Pacific Islander or Native American	99.4	95.8	95.1

Source: <http://www.navy.mil/navydata/testimony/personnel/mcgan0304.txt>

The RAND Corporation conducted a similar study that looked at military enlistment and attrition and "decision reversal."²² The study found:

[W]ith respect to race, the black and Hispanic [high school] graduates are no more likely than whites to attrite. It concluded that there was no compelling evidence that after controlling for other characteristics, these black and Hispanic graduates are more likely to stay in service because of differentially lower discrimination in the military than the civilian sector.²³

22 John Antel, James R. Hosek, Christine E. Peterson, *Military Enlistment and Attrition: An Analysis of Decision Reversal*, R-3510-FMP (Santa Monica, CA: RAND Corporation, 1987).

23 Ibid.

In 1997, Espiritu conducted a study that examined first-term attrition among racial/ethnic minorities in the Navy. He found that Asians tend to have the lowest attrition rate among racial/ethnic groups, and North American Indians/Alaskan Natives have the highest. Furthermore, the study identified Filipinos as having the the lowest overall attrition rate of the various racial/ethnic subgroups. He also found that attrition rates increase with AFQT from category IIIB to category IIIA for certain racial/ethnic groups and subgroups, such as whites, blacks and Filipinos. Again, Filipinos recorded the lowest attrition rates across all AFQT categories for all Asian ethnic groups.

A 1989 study by Cooke and Quester for the Center for Naval Analyses examined first-term attrition in the Navy. The purpose of the study was as follows:

The focus is on recent increases in attrition for recruits accessed since FY 1986. It presents the historical correlates of attrition and examines patterns in reasons for and authority for discharge. Also for the first time, patterns and trends in first-term attrition within and between activities, including carriers, surface combatants, submarines, squadrons, and amphibious units, are analyzed.²⁴

The authors concluded that "first-term attrition was up" and that "there had been no change in recruit characteristics that differentiated groups with higher and lower attrition probabilities."²⁵

²⁴ Timothy W. Cooke and Aline O. Quester, Navy First-Term Attrition, CRM 89-17 (Alexandria, VA: Center for Naval Analyses, 1989).

²⁵ Ibid.

2. The 1990s

In 1991, RAND Corporation focused on "reasons why individuals leave the service early."²⁶ Using the Department of Defense Inter-service Separation Codes (ISCs), they found three relationships between separation reasons and other factors. These factors are:

Certain types of mental health problems were more likely to surface early rather than later during a recruit's first term of enlistment;

Women were more likely than men to have such problems; and

Men were more likely than women to separate because of use of alcohol, drugs, and both minor and major offenses.²⁷

RAND used race (white, black, and other) to analyze why recruits failed to complete service based on ISCs. This study concluded that, regardless of race, the major reasons why recruits left the military were for work-related problems. The second reason for leaving military service was for training issues. On the other hand, separation rates due to drug, alcohol, or physical readiness tended to be less than 20 percent. There was one exception for the "Other" race group, which had an attrition rate greater than 20 percent in the category of the alcohol-related problems.²⁸

²⁶ Stephen Klein, Jennifer Hawes-Dawson, Thomas Martin, *Why Recruits Separate Early*, R-3980-FMP (Santa Monica, CA: RAND Corporation, 1991).

²⁷ Espiritu, 17.

²⁸ Ibid., 25.

3. 2000 - Present

More recently, Maligat conducted a study that looked at the U.S. Navy's Philippines Enlistment Program (PEP) from 1981 through 1991 and its possible reestablishment. This study found that Filipinos who enlisted under this program exhibited high educational attainment levels and high AFQT scores. Maligat also found that Filipinos had high short-term and long-term continuation rates. His finding also confirmed low attrition rates of Filipinos in the Navy. Filipinos were found to advance more rapidly and have fewer derogatory reentry codes. Maligat's findings led him to conclude that the program was valuable and should be reinstated.

D. SUMMARY

Although many studies of first-term attrition have been conducted, none were found that directly address the importance of the occupation or rating to which the minority enlistee is assigned. The common thread in previous studies is that racial/ethnic minorities tend to have lower attrition rates than do non-minorities. Most of these studies examine different demographic variables that have been shown to be good predictors of whether an individual will complete an entire enlistment. Among these factors, education level tends to be a major determining factor in first-term attrition. Other demographics that have been shown to affect first-term attrition are service, gender, race, age, marital status, AFQT scores, and area of residence. Studies also reveal that service members with lower AFQT scores were more likely to leave service before completing a first term of enlistment.

As valuable as the previous work has been, some questions still need to be addressed more thoroughly: in particular, whether racial/ethnic minority first-term attrition is affected by the job that these groups perform in the U.S. Navy. This study compares the first-term attrition rates of racial/ethnic minorities who possess a technical rating and those who possess a non-technical rating to determine whether this makes a significant difference in attrition rates.

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III. DATA AND METHODOLOGY

The primary objective of this study is to analyze attrition rates among Navy personnel by racial/ethnic group and to determine if there is a significant difference between those who are assigned technical ratings and those assigned non-technical ratings. The Defense Manpower Data Center (DMDC) in Seaside, California provided the data for this thesis. STATA analytical software was used to read and manipulate the data.

A. DATA

The data for this thesis are constructed from cohort accession files and are limited in the following way: male, non-prior service, first-term enlisted non-reservists who commenced serving in the active-duty Navy during fiscal years 1996 through 1999. The file contains the records of 177,790 male enlisted personnel. These records contain pertinent information on date of entry, date of discharge, reason for discharge, and rate of completion of full-obligated service, as well as demographic and military background information.

Female enlisted personnel are excluded from the study. The number of female racial/ethnic minorities who entered the Navy during this period is small and previous studies have shown that the factors that influence attrition for women are different from those that influence men; therefore, the decision was made to restrict the study to males only.

The Navy uses three racial codes to provide consistent data on race. These codes are consistent throughout the Department of Defense and were revised in NAVADMIN 369/02. These codes are: Whites, Blacks and Others. These three race codes are further divided into six racial ethnic groups: Non-Hispanic White, Non-Hispanic Black, Non-Hispanic Asian/Pacific Islander, Non-Hispanic North American Indian or Alaskan Native, and Other or Unknown.²⁹ Navy personnel in the database were classified into one of the six racial codes and further described by an ethnic code.

B. METHODOLOGY

The primary purpose of this study is to determine whether individuals assigned to technical occupations are less likely to attrite than those who are not. The primary unit of measurement used to examine attrition behavior in a group is the attrition rate. Attrition rates are calculated by determining the number of individuals who leave prior to the completion of their first enlistment by the total number of individuals in each racial and ethnic group. This study compares attrition for minorities over different ratings to determine if there is a link between racial/ethnic group, rating, and attrition.

C. VARIABLES

The following variables are the focal point of the study: attrition and Inter-service Separation Code (ISC);

²⁹ NAVADMIN 369/02, Revision to Classification of Race Data (Washington, DC, 2002).

race and ethnic group; enlisted rating (technical and non-technical); and Educational Tier Group (I, II, or III). Each of these variables is discussed below.

1. Attrition and Inter-service Separation Code (ISC)

Inter-service Separation Code (ISC) is used to determine the reason the individual separated from service prior to completing his entire first enlistment. This study uses the following reasons for early separation as indicators of attrition:

a. Medical: separation due to previous condition, disability, inability to continue training, or failure to meet weigh/body fat standard;

b. Dependency or hardship: separation due to child dependency. A Hardship exists when the individual's situation is unusual and cannot be resolved by the Navy; excessively aggravated since member has been serving on active duty; the problem affects the member's immediate family (spouse, son, daughter, stepchild, parent, parent-in-law, brother, sister, step-parent or other person acting in loco of parents for a period of five years before the member became 21 years of age or any bona fide dependent of the member;

c. Failure to meet minimum behavioral or performance criteria, including character or behavior disorder, motivational problems, enuresis, inaptitude, alcoholism, shirking, discreditable incidents, drugs, financial irresponsibility, lack of dependent support, unsanitary habits, civil court conviction, security, court martial, fraudulent entry, desertion, homosexuality, sexual

perversion, good of the service, juvenile offender, misconduct, unfitness, pattern of minor disciplinary infractions, commission of a serious offense, failure to meet minimum qualifications for retention, expeditious discharge, trainee discharge during entry level performance and conduct, and failure to participate; and pre-existing medical- separation due to previous condition or disability, unqualified to continue training, or failure to meet weigh/body fat standard; and

d. Separated for other reasons: conscientious objector, dropped for imprisonment, desertion, and parenthood.

There are other reasons individuals leave the Navy that were not included as attrition in this study. Two such reasons are end of active obligated service (EAOS) and early separation. Individuals who leave the Navy because of EAOS or who are authorized to leave the Navy before the end of their initial contract (normally six months prior) are not included in the attrition numbers because these individuals have completed all of the terms of their initial contract. Another reason for early separation that is not included in this study is death. Death in the line of duty or while on active duty is not considered attrition. In addition, individuals who were selected for commissioning in the officer ranks are not considered as attrition, rather continuation under a different status.

D. MINORITY, ETHNICITY, AND RACE

The terms minority (or minority group), ethnicity (or ethnic group), and race are discussed below with respect to their use in this study.

1. Minority

A "minority" is defined as a group of people distinguishable from others by race, nationality, religion, or language, who think of themselves as a differentiated group.³⁰ For example, Blacks, Hispanics, and Asians would be minority groups, whereas Whites would be the majority. For the purpose of this study, the term "minorities" is used to indicate members of racial or ethnic groups other than Whites.

2. Ethnicity

Ethnicity is indicated after a person has identified himself with one of the racial groups listed above. For example, someone Hispanic could be a "White or Black" Hispanic. Hutnik states that there is a major difference between minority groups and ethnic groups.³¹ That difference is evident in the way society ranks or treats those groups. Thus, "ethnics" have no specific ranking in society, whereas minority groups do.³²

The Department of Defense maintains information on the ethnicity of service members in the armed forces. This information is self-reported and is left solely to the discretion of the service member. A total of 23 ethnic groups are currently shown in the Department of the Navy personnel files. These groups are as follows:

³⁰ Warren L. Young, *Minorities and the Military* (Westport, CT: Greenwood Press, 1982), 294.

³¹ Nimmi Hutnik, *Ethnic Minority Identity* (Oxford, England: Claredon Press, 1991).

³² Hutnik, 17.

1. Mexican
2. Puerto Rican
3. Cuban
4. Latin American w/Hispanic Descent
5. Other Hispanic Descent
6. Aleut
7. Eskimo
8. North American Indian
9. Chinese
10. Japanese
11. Korean
12. Indian
13. Filipino
14. Vietnamese
15. Other Asian Descent
16. Melanesian
17. Micronesian
18. Polynesian
19. Other Pacific Island Descent
20. US/Canadian Indian Tribes
21. Other
22. None
23. Unknown

3. Race

A race is a group of people distinguished by genetically transmitted physical characteristics. Skin color is most commonly used when determining race. DoD generally identifies personnel in official reports as white, black, and other; however, combining race with ethnicity is used to show demographic distribution of military personnel by "racial/ethnic group." Race will be categorized in three groups: Whites (the base group), Blacks and Others.

4. Race/Ethnicity

Race/ethnicity (or racial/ethnic group) simply refers to groups of people distinguished by a combination of race and ethnicity. This reference is used to differentiate among individuals who may be of the same race but of a separate, identifiable ethnic descent. For example, this categorization is often used to separate persons of Hispanic descent by their race, since a person of Hispanic origin can also be of any race. At the same time, the Department of Defense uses a combination of race and ethnicity in certain tabulations, choosing to identify separately persons by four general groups: White (non-Hispanic), Black (non-Hispanic), Hispanic (of any race), and other. The basis for categorizing a person by Hispanic descent is self-identification at the time of enlistment. Thus, after segmenting persons of Hispanic origin, all others are identified by their racial group.

E. ENLISTED RATING

The U.S. Navy currently has 79 enlisted occupational categories or ratings. Table 1 lists the ratings that are considered technical ratings for the purpose of this study. Although there is no reference that delineates technical or non-technical rates, this determination was made based on the scope of the job performed. Generally, a rating is considered technical if the job requires that the individual repair the equipment used to perform the job. Rates that require individuals to be operators only are normally classified as non-technical ratings. Table 4 and Table 5 identify technical and non-technical ratings, respectively.

Table 4. Technical Ratings of US Navy Personnel

AC	Aircraft Controlman
AE	Interior Communication Technician
AECF	Advance Electronics/Computer Field
AT	Electronic Technncian
AW	Aviation Warfare Technician
CE	Construction Electrician
CTA	Crytological Administration
CTI	Crytological Interpreter
CTM	Crytological Maintenance
CTO	Crytological Operator
CTR	Crytological Repairman
CTT	Crytological Technician
EM	Electrician Mate
EN	Engineman
ET	Electronic Technician
EW	Aviation Electronic Technician
FC	Fire Control Technician
FT	Fire Control Technical
GSE	Gas Turbine Electrician
GSM	Gunner Mate Missile
IC	Interior Communication Technician
IS	Intelligence Specialists
IT	Information Technology
MT	Missile Technician
NF	Nuclear Field
SECF	Submarine Electronics/ Computer Field
STG	Sonar Technician
TM	Torpedoes Mate

Table 5. Non-Technical Ratings of US Navy Personnel

ABE	Aviation Boatswain's Mate
ABF	Aviation Boatswain's Mate Fuel
ABH	Aviation Boatswain's Mate Handling
AD	Aviation Machinist's Mate
AG	Aerographer's Mate
AM	Aviation Structural Mechanic
AN	Airman, (AR, AA)
AO	Aviation Ordnanceman
AS	Aviation Support Equipment Technician
AZ	Aviation Maintenance Administration
BU	Builder
CM	Construction Mechanic
CS	Culinary Specialist
DC	Damage Controlman
DK	Dispersing Clerk
DM	Draftsman
DT	Dental Technician
EA	Engineering Aid
EO	Equipment Operator
FN	Fireman
GM	Gunners Mate
HM	Hospital Corpsman
HT	Hull Technician
JO	Journalist
LI	Legalman
MM	Machinist Mate
MN	Mineman
MR	Machinist Repairman
OS	Operation Specialists
PC	Postal Clerk
PH	Photomate
PN	Personnelman
PR	Parachute Rigger Technician
QM	Quartermaster

RP	Religious Program Specialist
SH	Shopkeeper
SK	Storekeeper
SM	Signalman
SW	Steelworker
UT	Utilityman
YN	Yeoman

As Captain Anthony Barnes, Head of Diversity, Commander Navy Recruiting Command (CNRC), observes: "We continue to fall short in the number of minorities that are in technical ratings. We simply do not have enough minorities in technical jobs."³³ It is generally believed that minorities in technical ratings are more likely to remain for their entire enlistment than are those in non-technical ratings. This view has been validated by naval leaders such as Captain Barnes through discussions of the diversity crises that the Navy faces in the officer ranks. Normally, technical ratings are more marketable in the civilian sector than non-technical ratings; therefore, it is believed that minorities value them over non-technical jobs. The value that is placed upon these jobs by minorities may affect their decisions to stay with military service until the completion of their first term of service.

This thesis examines whether this is true. No previous studies were found that have directly addressed this issue. For this purpose, Navy ratings have been separated into the two categories described above. If technical ratings truly affect the attrition of minorities, then it is very

³³ Anthony Barnes, Officer Program Officers Goal Conference (Richmond, Va. 21-25 August 2006).

important for the Navy to ensure that qualified minorities are being placed within these technical ratings.

F. HIGH QUALITY (HQ) STATUS

The Navy seeks to attract and recruit recruits high-quality (HQ) applicants. A HQ applicant or recruit is a high school diploma graduate who scores at or above the 50th percentile on the Armed Forces Qualification Test (AFQT). These individuals comprise the Navy's primary target population for filling its enlisted ranks, particularly for technical occupations that demand special skills and require more intensive training. Because high-quality recruits are the primary market, applicants are expected to perform relatively well on the military's enlistment test to qualify. At the same time, AFQT scores for Whites in the national population tend to be higher, on average, than those found for either Hispanics or Blacks. Hispanics, in turn, tend to score higher than Blacks.³⁴ Since assignment to a technical rating is normally more selective than assignment to a non-technical rating, the percentage of minority enlistees who can qualify for a technical rating tends to be lower than the percentage of non-minority enlistees who can qualify for these jobs.

The Armed Services Vocational Aptitude Battery (ASVAB) is used by the military services in assigning new recruits to jobs and placing them in the appropriate skill-training courses.³⁵ It consists of the following test areas: General

³⁴ Anthony Barnes, Officer Program Officers Goal Conference (Richmond, Va. 21-25 August 2006).

³⁵ Mark J. Eitelberg, Janice H. Laurence, Brian K. Waters with Linda S. Perelman, Screening for Service: Aptitude and Education Criteria For Military Entry, (Manpower, Installations and Logistics, September 1984).

Science, Arithmetic Reasoning, Mathematics Knowledge, Word Knowledge, Paragraph Comprehension, Electronics Information, Auto and Shop Information, Mechanical Comprehension, and Assembling Objects (only on the computer-based version). The services use various combinations of ASVAB subtest scores to develop aptitude composites (also called line scores) for assigning new recruits to specific training courses.³⁶ Additionally, scores on the AFQT, derived from a combination of math and verbal ASVAB subtests, are grouped into five categories. These categories are used mainly for reporting purposes, but they also provide a shorthand indicator of a recruit's potential trainability. Thus, persons who score in AFQT categories I and II tend to be above average in trainability; those in category III, average; those in category IV, below average; and those in category V, markedly below average (and not eligible for enlistment).³⁷ Since job assignment hinges on ASVAB subtest scores, it becomes very important that minorities perform well to be placed in a technical rating.

36 Mark J. Eitelberg, Janice H. Laurence, Brian K. Waters with Linda S. Perelman, *Screening for Service: Aptitude and Education Criteria For Military Entry*, (Manpower, Installations and Logistics, September 1984).

37 Ibid.

IV. RESULTS

This chapter presents the results of the frequency and cross-tabulation analysis. Attrition rates are examined by race, race-ethnicity, and ethnic groups using specifically selected criteria. In addition, the rate of attrition is calculated based on the service member's Navy enlisted occupation or rating and educational Tier Group. Navy ratings were divided into two groups based on whether the individual was assigned to a technical or non-technical occupation. It is hypothesized that individuals in technical ratings attrite less frequently than do those in non-technical ratings because of their generally higher qualifications and more selective screening, as well as their extensive training. It is also hypothesized that minorities are more likely to complete their first term of enlistment because of the perception that fewer job opportunities can be found in the civilian workforce for minorities than for non-minorities. In addition, minorities are assigned to non-technical jobs more often than the base group. It is expected that the data will show that minorities are less likely than whites to become first-term attrites, especially when they are assigned to a technical rating. The data are further expected to show whether minorities are assigned to technical rates as often as the base group.

A. DESCRIPTIVE SUMMARY OF THE POPULATION

Within the DMDC database that was used, a total of 186,938 male enlistees were identified without prior

service and who joined the Navy from calendar year 1996 through 2000. The average entry age of the recruits was 19.4 years.

The majority of the recruits (80.8 percent) had a high school diploma and met the requirements of DOD to be classified as a High School Diploma Graduate (HSDG). Fifteen percent were classified as a non-diploma High School Graduate (HSG), and the remaining five percent as a Non-High School Graduate (NHSG). Information about education level was included because previous attrition studies have shown that education is one of the best predictors of success in the military.³⁸

B. ATTRITION RATES USE TAB KEY ON ALL HEADINGS

1. Race Group

As previously noted, the Department of Defense often uses three categories of race when reporting such data on its recruits: White, Black, and Other or Unknown. Table 6 presents the attrition rates of male enlisted personnel who entered the Navy in calendar years 1996 through 2000. The overall attrition rate is similar to attrition rates reported in previous studies, indicating that first-term attrition in the Navy remains at around 32 percent.³⁹ As the table shows, there were 186,938 male entrants and 59,810 leavers over the period covered by the study. Blacks are found to have the highest observed attrition

³⁸ Richard Buddin, Analysis of Early Military Attrition Behavior, R-3069-MIL (Santa Monica, CA: Rand Corporation, 1984).

³⁹ GAO Report to Congress, 1998.

rate (33.9 percent), and the "Unknown" category recorded the lowest attrition rate of the three groups, at 24.8 percent.

Table 6. Number of Navy Male Enlisted Entrants and Leavers and Attrition Rates by Race, Calendar Years 1996 through 2000

Race	Number		Attrition Rate ^c (Percent)
	Entrants ^a	Leavers ^b	
White	129,154	42,230	32.7
Black	35,499	12,049	33.9
Other/Unknown	22,285	5,531	24.8
TOTAL	186,938	59,810	32.0

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

a) All non-prior service enlisted personnel (male only) who entered the Navy during calendar years 1996 through 2000.

b) Number of entrants who left the Navy prior to completing their obligated term of enlistment within 48 months of their initial enlistment.

c) Attrition rate is the percentage of "entrants" who are "leavers."

2. Racial/Ethnic Group

Table 7 displays the attrition rates of Navy male enlistees who enlisted during calendar years 1996 through 2000 by racial/ethnic group. This table includes a combination of six racial and ethnic categories: Non-Hispanic Whites, Non-Hispanic Blacks, Hispanics, Non-Hispanic Asian/Pacific Islanders, Non-Hispanic North American Indian/Alaskan Natives, and Other/Unknown. The table shows that North American Indian/Alaskan Natives had the highest attrition rate (36.7 percent), and Asians had the lowest attrition rate (21.5 percent). The table also indicates a noticeable difference between the number of entrants and leavers for the non-Hispanic White and non-

Hispanic Black groups compared with the White and Black groups in Table 1. This difference is due to the reclassification of some individuals into the racial/ethnic categories. For example, a Hispanic individual can be a White Hispanic or a Black Hispanic or a member of the remaining race group, Other/Unknown. The differences between Tables 1 and 2 are also evident in other tables throughout this chapter that refer to race and racial/ethnic group.

Table 7. Number of Navy Male Enlisted Entrants and Leavers and Attrition Rates by Racial/Ethnic (RETH) Group, Calendar Years 1996 through 2000

RETH	Number		Attrition Rate ^c (Percent)
	Entrants ^a	Leavers ^b	
Non-Hisp White	115,530	36,629	31.7
Non-Hisp Black	34,352	11,949	33.9
Hispanic	22,210	7,068	31.8
Non-Hisp Asian/ Pacific Islander	7,038	1,510	21.5
Non-Hisp N.Amer Indian/ Alaskan Native	5,998	2,203	36.7
Other/Unknown	1,810	451	24.9
TOTAL	186,938	59,810	32.0

Source: Derived from data provided by the Defense Manpower Data Center (DMDC). All non-prior service enlisted personnel (male only) who entered the Navy during calendar years 1996 through 2000.

b) Number of entrants who left the Navy prior to completing their obligated term of enlistment within 48 months of their initial enlistment.

c) Attrition rate is the percentage of "entrants" who are "leavers."

3. Ethnic Group

As indicated in Chapter III of this study, ethnicity is determined by a person identifying oneself with a particular racial/ethnic group as well as with a particular ethnic group. The following sections examine attrition rates by several subcategories within the four major groups: Hispanics, Asians, North American Natives and Pacific Islanders.

a. *Hispanics*

Table 8 shows that, within the Hispanic group, Puerto Ricans have the highest attrition rate, 35.8 percent. Latin Americans (from areas other than Mexico, Cuba, or Puerto Rico) record the lowest attrition rate, 30.6 percent, which is slightly below the 32.4 percent attrition rate observed among Mexicans. With the exception of Latin American, the attrition rate of each Hispanic subgroup falls above the total population attrition rate of 32 percent. The attrition rate of the Hispanic group as a whole is 31.8, which is only a tenth of a percentage point higher than the attrition rate for White non-Hispanics.

Table 8. Number of Navy Male Enlisted Entrants and Leavers and Attrition Rates by Hispanic Subgroup, Calendar Years 1996 through 2000

Hispanic Subgroup	Number		Attrition Rate ^c (Percent)
	Entrants ^a	Leavers ^b	
Mexican	8,021	2,595	32.4
Puerto Rican	2,652	950	35.8
Cuban	212	71	33.4
Latin American	1,747	536	30.6
Other Hispanic Descent	8,578	2,916	33.9
TOTAL	22,210	7,068	31.8

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

a) All non-prior service enlisted personnel (male only) who entered the Navy during calendar years 1996 through 2000.

b) Number of entrants who left the Navy prior to completing their obligated term of enlistment within 48 months of their initial enlistment.

c) Attrition rate is the percentage of "entrants" who are "leavers."

b. Asians

In Table 9, which shows attrition information for Asian ethnic groups, Filipinos record the lowest attrition rate, at 15.2 percent. The highest attrition rate is seen in the Indian group, at 28.7 percent, with the Vietnamese and the Other Asian Descent subgroups following very closely, with 27.6 percent and 27.3 percent attrition, respectively. The Asian group makes up only about four percent of the total enlisted observations and manages to maintain an attrition rate that is far below the recorded rate of all male enlistees. The overall attrition rate for this group is 21.4 percent, which is also lower than that of all other racial/ethnic groups.

Table 9. Number of Navy Male Enlisted Entrants and Leavers and Attrition Rates by Asian Subgroup, Calendar Years 1996 through 2000

Asian Subgroup	Number		Attrition Rate ^c (Percent)
	Entrants ^a	Leavers ^b	
Chinese	399	90	22.6
Japanese	240	48	20.0
Korean	510	126	24.7
Indian	258	74	28.7
Filipino	2,876	437	15.2
Vietnamese	632	175	27.6
Other Asian Descent	1,734	473	27.3
TOTAL	6,649	1,423	21.4

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

a) All non-prior service enlisted personnel (male only) who entered the Navy during calendar years 1996 through 2000.

b) Number of entrants who left the Navy prior to completing their obligated term of enlistment within 48 months of their initial enlistment.

c) Attrition rate is the percentage of "entrants" who are leaver."

c. North American Natives

Table 10 indicates that the North American Native group's attrition rate is 36.7 percent, which is well above that observed in any other group in this study. This group makes up a mere three percent of the total population and this small sample size may be a factor that contributes to observation of such a high attrition rate. Of the subgroups within this category, North American Indians had the highest attrition rate (37.1 percent). Identification of these individuals proved to be extremely difficult due to their tendency to claim membership in multiple ethnic groups. It should be noted that the majority of those of North American Native descent observed in this dataset claimed membership in multiple ethnic groups. A good

example of this is that there are a number of entrants who identify themselves as Indian/North Alaskan, Asian, and Hawaiian; for the purpose of this study, these individuals were classified as North American Natives.

Table 10. Number of Navy Male Enlisted Entrants and Leavers and Attrition Rates by North American Native Subgroup, Calendar Years 1996 through 2000

North American Native Subgroup	Number		Attrition Rate ^c (Percent)
	Entrants ^a	Leavers ^b	
Aleutian	195	63	32.3
Eskimo	108	28	25.9
North American Indian	5,695	2,112	37.1
TOTAL	5,998	2,203	36.7

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

a) All non-prior service enlisted personnel (male only) who entered the Navy during calendar years 1996 through 2000.

b) Number of entrants who left the Navy prior to completing their obligated term of enlistment within 48 months of their initial enlistment.

c) Attrition rate is the percentage of "entrants" who are "leavers."

d. Pacific Islanders

In the DoD racial/ethnic classification system, Pacific Islanders are included in the Asian subcategory. However, to be consistent with past studies, this study treats Pacific Islanders as a separate group.

As shown in Table 11, Melanesians have the lowest attrition among this group (15.0 percent). The highest is among Polynesians, at 24.3 percent. However, the total attrition rate for this group is a mere 19.8 percent. The low attrition rates of the Melanesian and Micronesian subgroups help account for the low overall rate for this

group. Again, it must be noted that Pacific Islanders make up a very small proportion of the population. There are only 389 total observations of Pacific Islander in the entire database. These percentages should be viewed with caution due to the extremely small size of the group and recorded observations.

Table 11. Number of Navy Male Enlisted Entrants and Leavers and Attrition Rates by Pacific Islander Subgroup, Calendar Years 1996 through 2000

Pacific Islander Subgroup	Number		Attrition Rate ^c (Percent)
	Entrants ^a	Leavers ^b	
Melanesian	20	3	15.0
Micronesian	51	9	17.6
Polynesian	202	49	24.3
Other Pacific Islander Descent	116	26	22.4
TOTAL	389	87	22.4

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

a) All non-prior service enlisted personnel (male only) who entered the Navy during calendar years 1996 through 2000.

b) Number of entrants who left the Navy prior to completing their obligated term of enlistment within 48 months of their initial enlistment.

c) Attrition rate is the percentage of "entrants" who are "leavers."

C. DISTRIBUTION AND ATTRITION RATES BY AFQT CATEGORY

The Armed Forces Qualification Test (AFQT) is the military's enlistment test and one of the most important screening tools for determining enlistment eligibility. The Military Services use AFQT scores to predict a prospective recruit's trainability.⁴⁰ As noted previously, the AFQT is a composite of subtest scores from the Armed Services Vocational Aptitude Battery (ASVAB), which is

⁴⁰ Espirtu, 35.

comprised of eight sections for the high school version and nine parts for the production version. The high school version of the ASVAB is structured as follows: General Science, Arithmetic Reasoning, Word Knowledge, Paragraph Comprehension, Mathematics Knowledge, Electronics Information, and Mechanical Comprehension. In addition to these eight parts, the production version adds Assembling Objects as the ninth part. The critical areas for individuals taking the ASVAB are Arithmetic Reasoning, Word Knowledge, Paragraph Comprehension and Mathematics Knowledge. These four sections alone make up the AFQT category score. AFQT categories and the percentile score range for each category are as follows:

<u>AFQT Category</u>	<u>Score Range</u>
I	93-99
II	65-92
IIIA	50-64
IIIB	31-49
IV	10-30
V	1-9

Individuals scoring in category V are not eligible for enlistment in any branch of the military and consequently omitted from the present study.

1. Distribution by AFQT Categories and Race

Table 12 displays the percentage distribution of the total population for each race group by AFQT category. AFQT category is another characteristic that has been associated with an individual's likelihood of success in completing a first enlistment. It has been generally found that the higher a recruit's AFQT category, the less likely

he or she is to leave the military prematurely.⁴¹ It is important to note that the AFQT category itself does not play a role in the assignment of jobs. Jobs are assigned based on a combination of different line (test) scores, some of which make up the AFQT.

Generally, it is expected that recruits with higher AFQT scores will qualify for more technical jobs in the Navy; however, this is not always the case. Another important factor in assigning an individual to a rating relates to the needs of the Navy. Due to the difficulty of filling particular ratings within the Navy occupation structure, an individual may be assigned to a rating that does not always match the aptitude of the applicant. The majority of the population falls within AFQT categories II, IIIA and IIIB. Only five percent of the total population who entered the Navy during these calendar years fell into AFQT Category I. On the opposite end of the scale, only small numbers of Category IV individuals are allowed to enlist and therefore a very small number of observations are recorded in this category. These percentages are generally consistent with DoD Active Component Application Tables.⁴²

⁴¹ Buddin, Early Attrition Behavior, 49.

⁴² NPS Active Component Enlisted Accessions by Service, FYs 1973-2005.

Table 12. Percent Distribution for Male Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2001, by Race and AFQT Category

Race	AFQT Category					
	I	II	IIIA	IIIB	IV	ALL*
Non-Hisp White	6.0	38.4	24.4	30.8	.4	100
Non-Hisp Black	1.3	30.4	32.8	35.4	.1	100
Other/Unknown	4.8	29.8	31.5	33.5	.4	100
TOTAL	4.9	35.9	26.9	32.0	.3	100

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

*Indicates total population for each race group.

2. Distribution by AFQT Categories and RETH

As shown in Table 13, the distribution of AFQT category varies among the race/ethnic groups. Overall, and among the Non-Hispanic White racial/ethnic group, the largest AFQT category is category II. For the other racial/ethnic groups, Category IIIB is the largest category.

Table 13. Percent Distribution for Male Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2001, by RETH and AFQT Category

RETH	AFQT Category					
	I	II	IIIA	IIIB	IV	ALL*
Non-Hisp White	6.6	39.4	23.8	29.7	.5	100
Non-Hisp Black	1.1	31.2	32.4	35.2	.1	100
Hispanic	2.4	29.4	32.2	35.9	.1	100
Non-Hisp Asian/ Pacific Islander	4.2	29.3	29.1	37.0	.4	100
Non-Hisp N.Amer Indian/ Alaskan Native	5.7	28.5	29.4	35.9	.5	100
Other/Unknown	3.7	29.4	31.5	34.7	.7	100
TOTAL	4.9	35.9	26.9	32.0	.3	100

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

*Indicates total population for each racial/ethnic group.

3. Attrition by Race and AFQT Category

As seen in Table 14, attrition rates vary greatly by AFQT category among the race groups. The highest attrition rate for Whites occurred in category IIB, at 42 percent. For Blacks and "Other/Unknown" the highest attrition is observed in categories IIIB and IV, respectively. For almost all AFQT categories, the "Other/Unknown" category has the lowest attrition rate among the three race categories. The only exception to this is in category II, where Whites have a slightly lower attrition rate at 21.2 percent.

These findings are similar to those recorded by Espirtu in his 1997 study of attrition, as well as to those found in other previous attrition studies.⁴³ Each racial group generally shows an upward trend in attrition

⁴³ Espirtu, 36.

as AFQT category increases (i.e., as AFQT scores decrease). This supports the view that AFQT scores and attrition rates have a direct relationship. Several exceptions are found to the pattern indicated in this table. For the total of all entrants, attrition declines slightly between AFQT categories IIIB and IV, contrary to the overall pattern. The very small number of entrants in category IV may be reflected here. The three groups each experience their highest attrition in a different AFQT category. Attrition among Whites in AFQT category IIIB is slightly lower than attrition among Whites in category IIIA and Whites in category IV show a lower attrition rate than those in both category IIIA and category IIIB. At the same time, Blacks in category IV attrite less frequently than do their counterparts in category IIIB. The Other/unknown group has a lower attrition rate in category IIIB than in category IIIA.

Table 14. Attrition Rates for Male Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by Race Group and AFQT Category

Race	AFQT Category					
	I	II	IIIA	IIIB	IV	ALL*
White	23.0	21.2	42.0	41.5	38.1	32.7
Black	26.3	30.4	33.2	38.0	34.4	33.9
Other/ Unknown	22.5	24.5	28.4	22.0	29.7	24.8
TOTAL	23.1	23.0	38.0	38.3	32.0	32.0

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

*Indicates total population for each racial group.

4. Attrition by Racial/Ethnic Group and AFQT Category

In Table 15, attrition rates by AFQT category and racial/ethnic group indicate that Asians have the lowest attrition rate overall and in each AFQT category. Similar to the results in Table 9, racial/ethnic groups generally record their lowest attrition rate in AFQT category I, with Non-Hispanic Whites being the only exception, showing the lowest attrition in Category II. For all but the Other/Unknown group, attrition declines between categories IIIB and IV. The only group that comes close to the low attrition rates in each AFQT category observed among Asians is the "Other/Unknown" group. The highest attrition rate among all racial/ethnic groups is observed for Non-Hispanic Whites in AFQT category IIIA (42.8 percent).

Table 15. Attrition Rates for Male Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by RETH and AFQT Category.

RETH	AFQT Category					
	I	II	IIIA	IIIB	IV	ALL*
Non-Hisp White	23.1	19.8	42.8	40.4	38.8	31.7
Non-Hisp Black	26.1	31.0	35.0	38.1	34.4	34.8
Hispanic	25.9	29.0	30.7	35.6	31.8	31.8
Non-Hisp Asian/ Pacific Island	16.5	19.5	20.6	24.2	20.7	21.5
Non-Hisp N.Amer Indian/ Alaskan Native	21.9	38.1	37.0	37.9	28.5	36.7
Other/Unknown	22.4	24.8	28.4	22.0	33.3	24.9
TOTAL	23.1	23.0	38.0	38.3	37.0	32.0

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

*Indicates total population for each racial/ethnic group.

D. DISTRIBUTION OF TOTAL POPULATION CLASSIFIED BY DOD EDUCATIONAL STANDARDS

Previous research has shown that education credentials are a good predictor of success in the military.⁴⁴ The Navy uses Department of Defense education enlistment criteria, known as the Three-Tier System, to select applicants with the greatest likelihood of completing a full first term of service.⁴⁵ Every applicant who enters the Navy is classified as a High School Diploma Graduate (HSDG), a non-diploma High School Graduate (HSG), or a Non-High School Graduate (NHSG). Each of the 26 Navy Recruiting Districts (NRDs) throughout the nation has an Education Service Specialist (ESS) assigned. The ESS is the primary certifying official for TIER-level evaluations and serves as the Commanding Officer's (CO's) functional expert on all matters relating to education TIER-level placement and TIER-level evaluation. Although the CO has the final say in Tier Status/Educational Code assignments, his or her decision almost always reflects the ESS's evaluation. The district CO reviews and approves educational verifications conducted by the district's ESS. Assignments are based on the school attended and the transcripts the school provides for ESS review. Any dispute between the ESS and CO concerning TIER-level evaluation must be referred to the Commander Navy Recruiting Command (CNRC) for resolution.

44 M. J. Eitelberg, *A Preliminary Evaluation of Education Standards for Military Enlistment* (Monterey, CA: Naval Postgraduate School, 1983).

45 COMNAVCRUITCOMINST 1130.8G, March 11, 2005, Chapter 2, Section 6, p. 1.

1. Educational Tier Groups

Tier I consists of high school diploma graduates (HSDG). An applicant is classified as an HSDG when he or she falls into one of the following categories:

- Traditional High School Diploma Graduate
- High school seniors who have successfully completed all academic requirements for graduation, but failed a state-mandated secondary school exit exam.
- Mid-year Graduates
- Adult High School Diploma Graduates (not all are coded as HSDG)
- Postsecondary Degree
- Postsecondary Education with less than a degree
- Job Corps Programs
- Prior Service

Tier II consists of high school graduates (HSG) with alternate high school credentials. An applicant is classified as an HSG when he or she has participated in one of the following programs:

- Home School Programs
- National Guard Youth Challenge Program
- Seaborne Challenge Corps
- Test-Based Equivalency Diploma
- High School Certificate of Attendance or Completion
- Correspondence School, Distance Learning, Home Study, or Independent Study
- Other Non-Traditional High School Credential

Tier III consists of Non-High School Graduates (NHSG). An applicant is classified as an NHSG when he or she falls into the following category:

- Failure to Graduate

Policy and guidelines for district ESSs are outlined in the Navy Recruiting Manual-Enlisted, COMNAVCRUITCOMINST 1130.8G, Volume I.

2. High Quality

As previously observed, the combination of an individual's AFQT score and education is often used to determine his or her "quality". Individuals whose scores fall within AFQT categories I-III A and have a high school diploma, college education, or meet other requirements that are set forth by the Navy Recruiting Manual are classified as high quality. If an applicant for enlistment is not in Tier I, then he or she must usually score in AFQT categories I to III A in order to be enlisted.

a. Distribution of Entrants by Education Tier Group and Racial Group

Displayed in Table 16 is the distribution of enlisted personnel by race and tier group. This distribution shows that, for all race groups, the great majority of individuals fall into educational Tier group I (HSDG). This is the Navy's primary recruiting market and is the focus of the enlisted recruiting force. Individuals who have alternate educational credentials are required to score in AFQT categories I to III A in order to qualify for enlistment. Whites are observed to have the lowest percent of individuals in the Tier I category (93.1 percent).

Table 16. Percent Distribution of Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by RETH and Educational Tier Group

Race	<u>Education Level Category</u>			
	Tier I	Tier II	Tier III	ALL*
White	93.1	5.8	1.1	100
Black	95.7	3.5	.8	100
Other/Unknown	94.2	4.1	1.7	100
TOTAL	94.3	4.5	1.2	100

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

*Indicates total distribution for each racial group.

b. Distribution by High Quality and Racial/Ethnic Group

Table 17 shows the distribution of enlisted personnel by RETH and Tier Group. Over 90 percent of those who enter the Navy possess a high school diploma. This percentage is in compliance with the Navy's policy for the quality market set by Congress. Congress has set a limit of 90 percent high-school diploma graduates for enlistment into the Armed Forces; however, the Navy has set even more stringent requirements, setting its limit at 95 percent. Non-Hispanic Blacks have the highest percentage of HSDG of all racial/ethnic groups, followed by Non-Hispanic Asian and Non-Hispanic North American Indian/Alaskan Native. The group with the lowest percentage of individuals who possess a high school diploma is Non-Hispanic Whites, at 92.3 percent. Individuals that fall into educational Tier groups II and III are required to have a score that qualifies them for AFQT Group IIIA or higher to enlist in the Navy. Non-Hispanic Whites appear more likely to

qualify for enlistment without a high school diploma than any other racial/ethnic group. As one can see from the Tier definition list above, there are a variety of credentials that can qualify an individual as a HSDG. As mentioned earlier, education status is determined by supporting documents reviewed by each recruiting district's ESS.

Table 17. Percent Distribution of Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by RETH and Educational Tier Group

RETH	TIER I	TIER II	TIER III	ALL*
Non-Hisp White	92.3	5.4	2.3	100
Non-Hisp Black	95.7	3.3	1.0	100
Hispanic	94.5	4.7	.8	100
Non-Hisp Asian/ Pacific Islander	95.1	4.0	.9	100
Non-Hisp N.Amer Indian/ Alaskan Native	95.0	3.9	1.1	100
Other/Unknown	93.2	5.7	1.1	100
TOTAL	94.3	4.5	1.2	100

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

*Indicates total distribution for each racial/ethnic group.

E. DISTRIBUTION OF PERSONNEL ASSIGNED TO TECHNICAL AND NONTECHNICAL RATINGS

Enlistees who enter the Navy are assigned to ratings in the Navy. "Rating" is the Navy's term for the job to which an individual is assigned during his or her enlistment. As mentioned previously, these jobs can be categorized as either technical or non-technical. Rating assignment in the Navy is relatively complicated, with many criteria used in the process. Among these criteria are: AFQT, gender, race, ASVAB line scores, rating availability, and the needs of the Navy.

The rating assignment process begins at the Military Entrance Processing Station (MEPS) when the physically-fit applicant sits with a Navy classifier. The classifier is responsible for assigning individuals to the ratings that the Navy needs to fill the billets required to man ships, submarines, aircraft and shore facilities throughout the fleet. When the individual sits down with a classifier at MEPS, the applicant's AFQT score, line scores, gender, and race are all entered into the OCEAN system. OCEAN is simply the name given to the system and is not an acronym. OCEAN provides the classifier with the ratings for which the applicant qualifies. When they have been determined, the rates are then put into the Personalized Recruiting for Immediate and Delayed Enlisted (PRIDE) system to check availability. This is where the applicant's qualifications and the needs of the Navy are matched. Availability of rating has a profound effect on the rate that an individual receives on any given day.

1. Race Groups

Table 18 presents the distribution of technical and non-technical ratings by race. Overall, about two-thirds of all enlistees serve in non-technical jobs. Whites have the highest proportion of individuals assigned to a technical rating, at 43.6 percent. This proportion is 16.5 percentage points higher than that of Blacks assigned to a technical rating, and 14.3 percentage points more than that of the Other/Unknown group. Over 70 percent of minorities and about 56.4 percent of non-minorities who enter the Navy are assigned to a non-technical rating. This is significant, because individuals may feel that these jobs

are less marketable than technical jobs in the civilian sector, which could ultimately affect attrition. However, this figure, although large, should not be surprising, since the Navy has only 27 technical ratings to fill, compared with 42 non-technical ratings. Because the Navy has almost double the number of non-technical ratings to man, more personnel are needed to fill these billets. Many of the non-technical ratings are crucial to maintaining the various ships, aircraft, and shore stations throughout the fleet.

Although AFQT scores are not used directly for job assignment, it is the means by which all individuals qualify for military service. As previously observed, in addition to qualification purposes, it is also a strong predictor of their performance on line scores. Because rating assignments are based on line scores, these scores are important for placing individuals into the ratings that the Navy needs to fill. Line scores or a combination of different line scores are used to make assignments to Navy ratings and may include one or more of the four components used to calculate an individual's AFQT score.

Table 18. Percent Distribution of Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by Race and Assignment to Technical and Non-Technical Ratings

Race	Technical	Non-Technical	ALL*
White	43.6	56.4	100
Black	27.1	72.9	100
Other/Unknown	29.3	70.7	100
TOTAL	38.8	61.2	100

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

2. Racial/Ethnic Group

Table 19, also presents the distribution of technical and non-technical jobs, but this time by racial/ethnic group. This table shows a similar pattern to that displayed in the previous table: Non-Hispanic Whites have the highest assignment to technical rates (43.7 percent), followed by Hispanics (31.8 percent). Non-Hispanic North American Indian/Alaskans and Non-Hispanic Blacks have the lowest assignment to technical rates. Non-Hispanic Blacks, Indian/Alaskan Natives, and the Other/Unknown groups all have an assignment factor of over 70 percent to non-technical ratings. Hispanics have the third highest assignment to technical rates; however, they only make up about 12 percent of the entire population of entrants.

Table 19. Percent Distribution of Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by RETH and Assignment to Technical and Non-Technical Ratings

RETH	Technical	Non-Technical	All*
Non-Hisp White	43.7	56.3	100
Non-Hisp Black	29.1	70.9	100
Hispanic	31.8	68.2	100
Non-Hisp Asian/ Pacific Islander	30.7	69.3	100
Non-Hisp N.Amer Indian/Alaskan Native	28.4	71.6	100
Other/Unknown	29.7	70.3	100
TOTAL	38.8	61.2	100

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

a. Hispanics

Table 20 shows that, among the Hispanic subgroups, the Other Hispanic Descent category has the highest percentage of individuals in technical rates (33.9 percent), followed closely by Puerto Ricans and Cubans, with 32.7 percent and 31.5 percent, respectively. The Latin American subgroup members (not from Mexico, Cuba, or Puerto Rico) are the least likely to be assigned to a technical jobs among all Hispanics.

Table 20. Percent Distribution of Hispanic Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by the Hispanic Subgroup and Assignment to Technical and Non-Technical Ratings

Hispanic Subgroup	Technical	Non-Technical	All*
Mexican	31.5	68.5	100
Puerto Rican	32.7	67.3	100
Cuban	30.6	69.4	100
Latin American	29.8	73.2	100
Other Hispanic Descent	33.9	66.1	100
TOTAL	31.8	68.2	100

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

b. Asian

As seen in Table 21, the Asian subgroups have the second highest assignment to technical ratings of all minorities, with an overall assignment rate of 30.7 percent, which is slightly lower than Hispanics. The lowest percent assigned to technical jobs is observed for

the Indian subgroup (24.8 percent), followed by Vietnamese, at 25.6 percent. The Chinese and Japanese subgroups lead in assignment to technical ratings, both in the range of 36-38 percent. It is interesting that more than half of this subgroup have technical assignment ratings of 30 percent or more.

Table 21. Percent Distribution of Asian Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by Asian Subgroup and Assignment to Technical and Non-Technical Ratings

Asian Subgroup	Technical	Non-Technical	All*
Chinese	36.1	63.9	100
Japanese	38.0	62.0	100
Korean	30.8	69.2	100
Indian	24.8	75.2	100
Filipino	29.2	70.8	100
Vietnamese	25.6	74.4	100
Other Asian Descent	33.5	66.5	100
TOTAL	30.7	69.3	100

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

c. North American Native

Table 22 shows the assignment of North American Natives to technical and non-technical ratings. North American Indians have the highest percent assigned to technical ratings among North American Natives, at 30.4 percent. This number could very well be due to the small number of enlistees from this group – only 17 enlistees

from 1996 through 2000. The number of Eskimo and Aleutian enlistees during the same period was only somewhat higher, with 26 entrants each.

Table 22. Percent Distribution of North American Native Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by North American Native Subgroup and assignment to Technical and Non-Technical Ratings

North American Native Subgroups	Technical	Non-Technical
Aleutian	25.3	74.7
Eskimo	29.2	70.8
North American Indian	30.4	69.6
TOTAL	28.4	71.6

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

d. Pacific Islanders

As shown in Table 23, a mere 14.7 percent of the entire Pacific Islander group was assigned to a technical rating. This is, by far, the lowest proportion among all groups. Only about 10 percent of Micronesians were assigned to technical jobs. The number of total enlistments for this group from 1996 through 2000 was 389 individuals, which is less than one percent of the total population. It is important to mention that Pacific islanders' low assignment to technical occupations may be a result of issues related to obtaining a security clearance. Because most technical occupations require a security clearance, these policies

may have a direct effect on Pacific Islanders' assignment to these jobs that may not affect other racial/ethnic groups.

Table 23. Percent Distribution of Pacific Islander Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by the Pacific Islander Subcategories and by Assignment to Technical and Non-Technical Rating

Pacific Islander Subgroups	Technical	Non-Technical	All*
Melanesian	10.0	90.0	100
Micronesian	15.7	84.3	100
Polynesian	11.4	88.6	100
Other Pacific Islander Descent	20.7	79.3	100
TOTAL	14.7	85.3	100

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

F. ATTRITION IN TECHNICAL AND NON-TECHNICAL RATING

This section examines the attrition rates of ethnic groups by technical and non-technical ratings. As mentioned previously, many studies have been conducted on attrition using a variety of other indicators; however, no previous study has been found that examines attrition among racial and ethnic groups on the basis of occupational type. Chapter 3 identified the Navy occupations categorized as technical and non-technical.

1. Race Groups

Table 24 displays the attrition rates of enlisted personnel by race for those in technical and non-technical ratings in the Navy. It shows that, while 32.0 percent of

the entire population attrited from the Navy, 33.7 percent of those in technical ratings left the Navy. The Black category had the highest attrition among individuals assigned to technical ratings in the Navy. Whites had experienced the lowest attrition rate in technical ratings among the race groups. However, when one looks at non-technical ratings, Whites were far more likely to leave the Navy prior to the end of their first enlistment. Since individuals in technical ratings are normally those who perform better on the ASVAB, these results do come as somewhat of a surprise. Individuals with higher AFQT scores are generally expected have a greater potential to succeed; therefore, one would assume that they would be more likely to complete their first enlistment, but that is not the case here. It should be noted that Whites do have a higher attrition rate in non-technical ratings than in technical ratings. The higher attrition rate in technical ratings for enlisted personnel as a whole is consequently attributable to the substantially higher attrition rates among the two minority groups in the technical ratings.

Table 24. Attrition Rates of Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by Race and Assignment to Technical and Non-Technical Ratings

Race	Technical	Non-Technical	All*
White	31.0	34.0	32.7
Black	47.5	28.9	33.9
Other/Unknown	36.9	19.8	24.8
TOTAL	33.7	31.0	32.0

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

*Indicates total attrition for each racial group.

2. Racial/Ethnic Group

Table 25 displays the attrition rates for racial-ethnic groups in technical and non-technical ratings. All ethnic groups show a greater tendency to complete their first enlistment when assigned to non-technical ratings with the exception of non-Hispanic Whites, Non-Hispanic Asian/Pacific Islanders have an extremely low attrition rate of 19.0 percent for individuals in non-technical ratings. Non-Hispanic Pacific Islanders and the Other/Unknown categories show the lowest rate of attrition in technical ratings, 27.3 percent and 29.4 percent, respectively. It appears that Hispanic, non-Hispanic North American Indian/Alaskan Native, non-Hispanic Black, and Non-Hispanic Asian /Pacific Islander individuals in non-technical ratings attrite less frequently than do their counterparts in technical jobs, contrary to expectations.

Table 25. Attrition Rates of Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by RETH and Assignment to Technical and Non-Technical Ratings

RETH	Technical	Non-Technical	ALL*
Non-Hisp White	31.0	32.3	31.7
Non-Hisp Black	38.1	31.4	33.9
Hispanic	42.8	28.1	31.8
Non-Hisp Asian/ Pacific Islander	27.3	19.0	21.5
Non-Hisp N.Amer Indian/ Alaskan Native	56.1	29.0	36.7
Other/Unknown	29.4	23.0	24.9
TOTAL	33.7	31.0	32.0

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

*Indicates attrition rate for total population for each racial/ethnic group.

a. Hispanics

Table 26 shows that attrition among all Hispanic subgroups in technical ratings is higher than in non-technical ratings. The Other Hispanic Descent group has the highest attrition among those in technical jobs (51.2 percent), followed closely by Latin Americans (not from Mexico, Puerto Rico, or Cuba). Mexican, Puerto Rican and Cuban technical attrition rates are all in the mid to high 40 percent range. On the non-technical side, Cubans tend to attrite least often. It is interesting that none of the subgroups have attrition in non-technical ratings that is above 30 percent. The pattern holds that those in technical ratings are leaving more often than are those in non-technical ratings for all Hispanics. In this ethnic

category the attrition rate for technical occupations is nearly double that for non-technical ratings.

Table 26. Attrition Rates of Hispanic Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by Hispanic subgroup and Assignment to Technical and Non-Technical Ratings

Hispanic Subgroup	Technical	Non-Technical	ALL*
Mexican	46.5	28.7	32.4
Puerto Rican	45.6	29.9	35.8
Cuban	44.6	25.3	33.4
Latin American	50.1	27.0	30.6
Other Hispanic Descent	51.2	26.4	33.9
TOTAL	48.2	28.1	31.8

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

*Indicates attrition rate for total population for each racial/ethnic group.

b. Asians

In Table 27, we find that the Asian subgroups follow the same pattern seen for other minority groups. Individuals in non-technical ratings of this group tend to attrite less often than do those in technical ratings. However, there are three exceptions in this group: those in Chinese, Japanese, and Indian ethnic subgroups. These subgroups attrite less often when assigned to technical occupations. Overall, the Asian subgroups have the lowest attrition rate in both non-technical and technical ratings among all of the other subgroups in this study. The total attrition rate for the Asian subgroups is a mere 21.5 percent.

Table 27. Attrition Rates of Asian Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000 by Asian Subgroups and by Assignment to Technical and Non-Technical Ratings

Asian Subcategory	Technical	Non-Technical	All*
Chinese	16.0	16.8	22.6
Japanese	14.3	23.5	20.1
Korean	29.3	22.7	24.7
Indian	20.3	31.4	28.7
Filipino	20.0	13.2	15.2
Vietnamese	42.0	22.8	27.6
Other Asian Descent	36.3	22.7	27.3
TOTAL	26.5	19.1	21.5

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

*Indicates attrition rate for total population for each racial/ethnic group.

c. North American Natives

Table 28 shows that, among North American Native subgroups, the difference in attrition between technical and non-technical ratings is relatively large. In most cases, the attrition rate for technical ratings is nearly double that for non-technical occupations. In this subcategory, the overall difference between the two is 25 percent. Attrition among individuals in technical ratings is extremely high, with North American Indians having the largest proportion of leavers at 58.7 percent. The lowest attrition in technical ratings is 54.1 percent, observed among Eskimos. Attrition for individuals in non-technical ratings ranges from 20-30 percent, with the highest attrition observed for North American Indians. These

percentages are still lower than the lowest attrition rate for individuals in technical ratings among this subcategory. The total attrition rate for this entire group is 36.7 percent. This is the highest attrition rate found for the larger minority subgroups to this point.

Table 28. Table 28. Attrition Rates of North American Native Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by North American Native Subgroups and by Assignment to Technical and Non-Technical Ratings

North American Native Subcategory	Technical	Non-Technical	All*
Aleutian	55.3	29.2	32.3
Eskimo	54.1	27.7	28.9
North American Indian	58.7	31.4	37.1
TOTAL	56.1	29.0	36.7

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

*Indicates attrition for total population for each racial/ethnic group.

d. Pacific Islanders

Table 29 shows the attrition rates for Pacific Islanders. The attrition rates are extremely high relative to those of other groups assigned to technical occupations and quite low for non-technical occupations. The elevated attrition rates observed in technical ratings may be due partly to the very small number of observations in the group. There are, however, two exceptions: Polynesians and Other Pacific Islanders, whose attrition level in technical ratings is 37.5 percent. The total

attrition rate for the entire Pacific Islanders group is 22.4 percent, which is quite low when compared with that of other groups.

Table 29. Attrition Rates of Pacific Islander Enlisted Personnel who entered the Navy in Calendar Years 1996 through 2000, by Pacific Islander Subgroups and by Assignment to Technical and Non-Technical Ratings

Pacific Islander Subcategory	Technical	Non-Technical	ALL*
Melanesian	50.0	11.1	15.0
Micronesian	37.5	14.0	17.6
Polynesian	78.3	17.3	24.3
Other Pacific Islander Descent	37.5	18.5	22.4
TOTAL	54.4	16.9	22.4

Source: Derived from data provided by the Defense Manpower Data Center (DMDC).

*Indicates attrition for total population for each racial/ethnic group.

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The primary objective of this study was to examine first-term attrition rates in the US Navy by race, racial/ethnic group, and ethnicity, and to then compare the attrition rates across two types of Navy occupations, non-technical and technical. The results of the study are based on cross-tabulations and frequency distributions of male entrants to the Navy between calendar year 1996 through 2000. Data for the study were provided by DMDC in Monterey, California. A summary of findings, conclusions, and recommendations based on the study is presented below.

A. SUMMARY

1. Distribution

a. *Race and Ethnic Group*

The distribution of Navy male entrants by race for this study shows that Whites comprise the highest percentage of the three race groups. Whites account for over two-thirds of the total population (69.1 percent) of males who entered the Navy from calendar year 1996 and 2000. The second highest percentage is accounted for by Blacks (19.0 percent), followed by the Other/Unknown race group (11.9 percent).

Entrants were divided into seven Racial/ethnic groups: non-Hispanic White, non-Hispanic Black, Hispanic, non-Hispanic Asian/Pacific Islander, non-Hispanic North American Indian/Alaskan Native, and Other/Unknown. Non-Hispanic Whites account for 61.8 percent of entrants. Non-Hispanic Blacks account for the next highest proportion

(18.4 percent). Hispanics are divided into five ethnic subgroups and make-up 11.9 percent of the total entrants. The remaining three racial/ethnic groups include: non-Hispanic Asian/Pacific Islanders, non-Hispanic North American Indian/Alaskan Natives, and the Other/Unknown group. These groups comprise less than 10 percent of the male entrants included in this study. Each of these is divided into several subgroups.

b. AFQT

The distribution of male Navy entrants is further examined by AFQT, educational Tier Group, and occupation. Less than five percent of the total population qualifies as AFQT category I (4.9 percent). Entrants were most likely to fall within AFQT categories II - IIIB. AFQT category II has the highest percentage of individuals and contains those who scored in the range of 65-92 on the test. Comparing the remaining two categories, IIIA and IIIB, entrants were more likely to score in AFQT category IIIB (32.0 percent), followed by category IIIA (26.9 percent).

Whites were more likely to qualify in AFQT categories I and II, while both Blacks and members of the Other/Unknown racial group were more likely to score in categories IIIA and IIIB. Because minorities are less likely to qualify in the higher AFQT categories, they are less likely to be assigned to the more technical occupations. AFQT category is not actually a determining factor in occupational assignment, but it is an important indicator because it does correlate highly with other tests

used to determine eligibility. Further, the majority of individuals assigned to technical ratings tend to fall within AFQT categories I and II.

Among the racial/ethnic groups, non-Hispanic Whites still qualify more often than any other group in AFQT category I (23 percent), but this is closely followed by non-Hispanic North American Indian/Alaskan Natives (5.7 percent) and non-Hispanic Asian/Pacific Islanders (4.2 percent). Non-Hispanic Whites have the lowest percentage of individuals to qualify in AFQT category IIIA. However, they are the only racial/ethnic group for whom almost half of their scores place them in AFQT categories I and II. For all other racial/ethnic groups, the highest qualification percentage is in categories IIIA and IIIB, averaging around 60 percent.

c. Tier Groups

The distribution of entrants by race among educational Tier Groups shows that over 90 percent of the individuals enlisted from 1996 through 2000 possessed a traditional high school diploma or qualified alternatively under Tier Group I. Whites recorded the lowest percentage among Tier Group I, which tends to indicate that Whites have a better chance of qualifying for Naval service without a high school diploma than do minorities. This is most likely due to the access to more opportunities for a better quality education. Many minorities are forced to attend inner-city schools, due to financial reasons, and in most cases the quality of the education they receive does not meet a high educational standard, and this has likely contributed to the lower percentage of Tier II and III

individuals among minority Navy enlistees. This difference in educational opportunities could be a contributing factor in explaining why Whites in Tier Groups II and III are more capable of qualifying for military service. Another factor that may attribute to Whites qualifying at greater percentages in Tier II and III could be the emergence and expanded use of home schooling. Over the past decade, more parents have turned to home schooling as an alternative to public education, forcing the Navy to revise its policy on alternative education. Whites may be more likely to be home-schooled than other racial groups. This could change over the next decade if more minority parents choose home schooling, resources for home schoolers continue to improve, and home schooling meets the qualitative objectives of its proponents.

d. Technical vs. Non-Technical Occupations

The percentage of individuals assigned to technical and non-technical ratings in the Navy varies among racial groups. Whites have the most even split (43.7 percent technical and 56.3 percent non-technical) of individuals assigned to the two different types of ratings. This is not the case with minorities. Only about one-third of the minority entrants in this study were assigned to technical ratings. This assignment pattern generally holds true throughout all of the racial/ethnic groups. Hispanics, Non-Hispanic Blacks, and Non-Hispanic North American Indians/Alaskan Natives are assigned to technical occupations at about 32 percent, 29 percent, and 28 percent, respectively, while 31 percent of Asians/Pacific Islanders enter such occupations. When individual ethnic

groups are considered, there is great variation in the percent assigned to technical occupations. An example of this is the Pacific Islander Subgroup. When examined separately, apart from non-Hispanic Asian Islanders, the proportion of those assigned to technical occupations falls to 14.7 percent. This assignment rate to technical occupations is by far the lowest in this study. A key-contributing factor could be the difficulty for persons in the Pacific Islander group in obtaining a security clearance, which is required for a number of technical occupations.

2. Navy First-term Attrition

The attrition rate for all male Navy enlistees in the study is 32 percent for this period. This is consistent with previous studies conducted on attrition. First-term attrition rates have remained at roughly 30 percent since the inception of the All-Volunteer Force.

a. Race

The Other/Unknown race group records the lowest attrition rate (24.8 percent) among the three races. Whites fall in the middle (32.7 percent), with Blacks found to have a slightly higher attrition rate (33.9 percent).

b. Racial/Ethnic Group and Ethnic Group

The non-Hispanic Asian/Pacific Islander group records the lowest attrition rate among racial/ethnic groups in this study (21.5 percent); however, it should be noted that this group accounts for only 12 percent of the entire male population for this period. The highest

attrition rate is observed for the non-Hispanic North American Indian/Alaskan Native group (36.7 percent). This group is followed closely by Non-Hispanic Blacks, who have an overall attrition rate of 33.9 percent. Hispanics and non-Hispanic Whites record nearly the same attrition rate, 31.8 percent and 31.7 percent, respectively. Attrition varies greatly by ethnic subgroups. Filipinos have the lowest attrition rate (15.2 percent) in the Asian Subgroup. When this low rate is included in the calculation of the overall attrition rate for Asians, it is a major contributor to the overall low attrition of this racial/ethnic group. The only other ethnic groups that have an attrition rate below 20 percent are Melanesians and Micronesians at 15.0 percent and 17.6 percent, respectively. However, due to the small number of observations recorded for these two groups, one should view the results with caution.

c. AFQT Scores

Attrition rates tend to rise as AFQT scores decrease along with comparable changes in AFQT category; however, in the non-Hispanic Whites racial/ethnic group, there is a decrease in attrition in category II, well below all of that group's other AFQT categories. This anomaly is observed in the non-Hispanic North American Indian/Alaskan Native group in categories IIIA and IV, where one would expect the attrition rate to rise in conjunction with the AFQT category; however, they both take a surprising dip.

Non-Hispanic Asian/Pacific Islanders record the lowest attrition across almost all AFQT categories. There is one exception in AFQT category IIIB, in which the

Other/Unknown group has a lower attrition rate (22.0 percent) than Asian/Pacific Islanders. It is important to note that the Other/Unknown racial/ethnic group also shows relatively low attrition across all AFQT categories when compared with the other groups in this study.

d. Technical/Non-Technical Occupations

Occupational assignment is found to have a somewhat unexpected relationship with first-term Navy attrition. One would expect that, since individuals in technical ratings usually have higher AFQT scores and are generally considered to be more qualified than those in non-technical ratings, these individuals would be more likely to complete their first term of enlistment. However, for all entrants, those in non-technical occupations attrite at a lower rate than do those in technical ratings, at 31.0 percent and 33.7 percent, respectively. The attrition rates by type of occupation calculated for this thesis show a different pattern for minorities and non-minorities among the three racial groups. Blacks in non-technical occupations complete their initial enlistment at a considerably higher rate than do their counterparts in technical ratings; those in non-technical jobs have an attrition rate of 28.9 percent, compared with a rate of 47.5 percent in technical positions. This is not the case with Whites, who show somewhat lower attrition in technical (31 percent) than in non-technical (34 percent) occupations. The Other/Unknown racial group has a pattern of attrition by job type that is similar to that of Blacks, with almost 34 percent of

technical entrants leaving and only about 20 percent of non-technical entrants leaving before the end of the first term.

Overall, Non-Hispanic Asian/Pacific Islanders in technical occupations attrited at a rate of 27.3 percent, whereas the attrition rate of their counterparts in non-technical occupations was much less at 19.0 percent. Non-Hispanic Asian/Pacific Islanders have by far the lowest attrition rate among both technical and non-technical occupations.

Ethnicity appears to have a strong correlation with the likelihood of first-term attrition. Three of the Non-Hispanic Asian/Pacific Islander ethnic subgroups, those of Chinese, Japanese, and Indian descent, show the expected result that individuals in technical rates are less likely to attrite than are those in non-technical rates. Two ethnic subgroups have extremely high attrition in technical occupations: Hispanics (42.8 percent) and non-Hispanic North American Natives (56.1 percent). It should be noted that individuals in non-technical occupations in these two subgroups have a relatively low attrition rate at 28.1 percent and 29 percent, respectively. Attrition in non-technical occupations for these two ethnic groups is similar to attrition of all other ethnic groups.

B. CONCLUSIONS

As originally expected, occupational assignment does appear to correlate strongly with an individual's likelihood of first-term attrition. Results reveal that most minorities in a non-technical occupation are less likely to attrite than are their counterparts assigned to a

technical occupation. However, there is one racial/ethnic group and three ethnic subgroups that have results totally opposite of the finding just mentioned: non-Hispanic Whites and, to a greater extent, non-Hispanic Asians in the Chinese, Japanese, and Indian ethnic subgroups. Individuals in these groups were found to be more likely to complete the first enlistment term if they were assigned to a technical occupation, which is contrary to the findings for the other minority racial/ethnic groups in this study.

These results are exploratory in nature, but they indicate that attrition varies greatly by racial/ethnic group and ethnic subgroup. In addition, the results suggest that occupational assignment may play a major role in the first-term losses of male enlisted personnel in the Navy. Continued study of the process and outcomes of Navy job assignment may yield valuable insights that could ultimately be used to reduce the present level of first-term attrition.

1. Recommendations

Numerous studies have looked at first-term attrition in the military since the draft ended in 1973. Indeed, since over one-third of recruits have historically failed to complete their first term of service, it is understandable why more time and effort have been devoted to analyzing this particular manpower issue than almost any other over the past three decades. Most of these studies have examined enlistment screening elements, such as education, aptitude test scores, physical or medical factors, as well as attitudes and pre-service behavior. Most of these studies have also looked at selected

demographic characteristics of enlisted personnel, including gender, race or ethnicity, age, marital status or number of dependents, and indicators of socioeconomic status. The present study was designed to look somewhat beyond the factors that have been used previously to explain first-term attrition by exploring the interrelationship of race and ethnicity with the type of job to which an enlistee is assigned. Further research concerning the possible reasons for differences in attrition based on technical and non-technical occupational assignment would likely prove useful to the Navy in understanding why individuals fail to complete their initial term of service. The ultimate objective is the same as it has been for well over thirty years: to select and assign recruits most effectively and to reduce the costs and turbulence that result from a sizable loss of human resources year in and year out.

a. Recommendations for Further Study

Investigate why non-Hispanic Asian/Pacific Islanders have the lowest attrition rate among all minorities. Specifically, Filipinos have an attrition rate that is unmatched by any other racial/ethnic group in this study. A more in-depth study of this group may reveal the factors that entice them to complete their initial enlistment and eventually choose the Navy as a career.

Examine ethnic group members within technical and non-technical ratings at the point when individuals detach from the military service. A closer look at the timing of attrition may help to explain the observed differences between enlisted personnel serving in technical and non-

technical occupations. It would also be useful to more closely investigate the specific reasons for attrition, by selecting a sample of cases and digging deeply into existing records. Automated data files contain levels of detail on the reasons for separation, but periodic auditing of these files over the years has raised some question regarding their accuracy.

Investigate to determine what other factors may affect attrition beyond occupational assignment. Factors that have been examined in the past include: geographical area of the individuals enlisting; timeframe in which the enlistees join the Navy; and the amount of time individuals spend in the Delayed Entry Program prior to reporting for active duty.

Examine whether Whites are more likely than minorities to choose home-schooling as an alternate to traditional education. A study of this nature might be helpful in explaining why Whites are more likely to qualify with alternate educational credentials. This could shed some light on differences in occupational qualification by race.

Examine the gap in educational quality between Whites and minorities to determine ways to make minorities more competitive for technical occupations. Efforts to narrow this gap might lead to placing more individuals in a technical occupation who might have otherwise been assigned to a non-technical rating.

Conduct an in-depth analysis of the occupational assignment process, particularly for minorities. Questions to be answered could include: Are we assigning the most

qualified minority group members to technical occupations, or do we find other, extraneous factors driving job assignment?

b. Policy-Related Studies

Investigate the potential effects of an increase in enlistment bonuses and the possible effects of a change in the way enlistment bonuses are distributed to enlistees. The split disbursement option may be used to encourage the completion of an individual's first term of enlistment. This bonus could be paid in three installments with the last distribution having the effect of a balloon payment. A policy such as this may act as a motivational tool, further enticing enlisted members to complete their first enlistment agreement.

Examine increased college loan repayment plans for individuals who complete their entire initial enlistment. This may appeal particularly to minorities who need additional finances to offset the cost of higher education.

In today's competitive job market and economy, it is essential that the Navy continue searching for ways to retain the quality individuals who volunteer to serve our nation. It is even more essential to preserve the diverse composition of today's Navy. As the Chief of Naval Operations states: "Our Navy must reflect the face of our nation, and that's why it's of interest to me to attract and retain young men and women of minority communities to come into the Navy, because only if we do that will we

reflect the face of our nation." ⁴⁶ This is why the study of attrition among minorities remains important and relevant to the future of our nation's military.

⁴⁶ Admiral Gary Roughhead, CNO, (*Annual National Naval Officers Association* 12 August 2005 at Riverside Hilton, New Orleans, Louisiana).

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