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A STRUCTURE AND DATA BASE FOR ANALYZING THE TRAINING SCHOOL PERFORMANCE OF HISPANIC-AMERICAN ENLISTEES IN THE NAVY

by

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December 1989

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A Structure and Data Base for Analyzing the Training School Performance of Hispanic-American Enlistees in the Navy

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ABSTRACT

The purpose of this thesis was to create a structure for analyzing the training school performance of Hispanic-American enlistees in the Navy. This was accomplished by developing a computerized data base, utilizing an extract of the Navy Enlisted Classification Tracking file (NECTRACK) and the Enlisted Training Tracking file (TRAINTRACK), supplied by the Navy Personnel Research and Development Center. In addition, a review of literature was undertaken to provide a summary of available information on factors that may influence the performance of Hispanic-Americans in the Navy. Finally, the data base was explored by conducting a preliminary analysis of the relationship between selected training outcomes and the educational level of Hispanic sailors. Several recommendations are offered concerning the application of the data base and the treatment of research variables. In addition, further study is recommended using the data set developed for this thesis.

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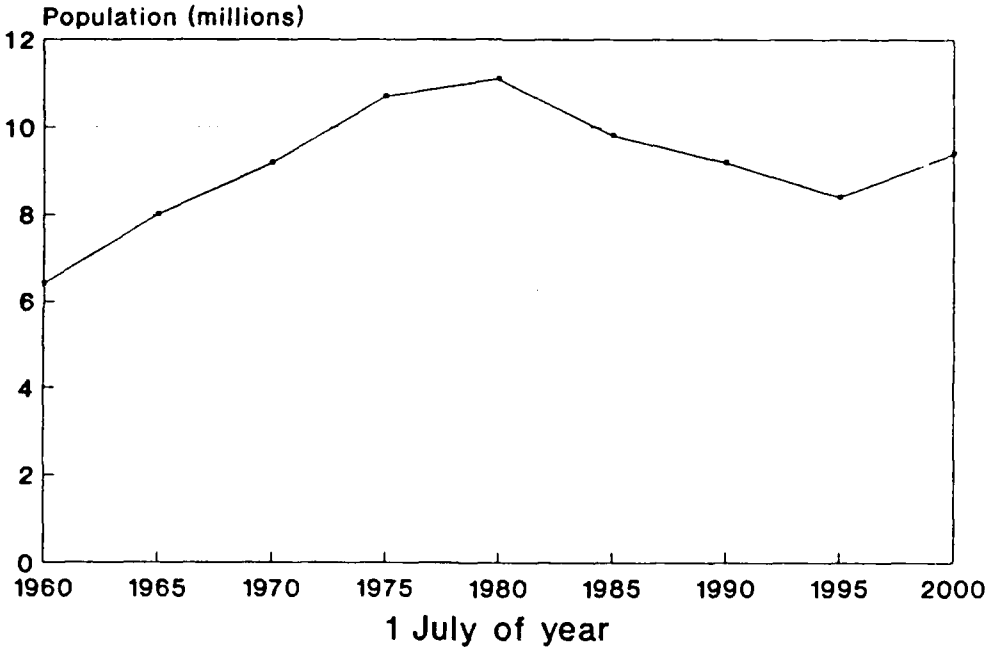
I. INTRODUCTION

Manpower issues are of vital importance to the United States Navy. The Navy must possess an effective fleet on the sea, under the sea, and in the air. The highest possible level of fleet readiness is of prime concern to the Navy, and qualified personnel are needed to uphold this level of readiness. The Navy has maintained an operational pace in recent years that is unprecedented in peacetime. In 1982, the Chief of Naval Operations (CNO), Admiral Thomas B. Hayward, emphasized this point before the House Committee on Appropriations: "The Navy has been at virtually a wartime operating tempo since the beginning of the Vietnam conflict and has never stood down." [Ref. 1]

In 1978, a Brookings Institution study found that naval forces were involved in 177 of the 215 incidents promoting U.S. political objectives from World War II to 1975 [Ref. 1]. Currently, the Navy has fleets on three oceans, the Mediterranean Sea, and the Persian Gulf. It is also engaged in extensive drug interdiction operations in the Caribbean. To keep this tempo has taken considerable manpower, and the Navy continues to require capable people to maintain a formidable national defense.

The declining population of youth has made this requirement for quality personnel very difficult to attain;

and the decline is not expected to reach its lowest point until the mid-1990s. The youth population is expected to increase in number from that point until the year 2010, but the population size will not be as large as it was in the early 1980s [Ref. 2]. The magnitude of the change can be seen in Figure 1-1, which tracks the population of 17- to 21-year-old males between years 1960 through 2000.



Source: Lockman, Robert F., Trends and Issues in U.S. Navy Manpower, Center of Naval Analysis, Alexandria, Virginia, 1987, p. 83.

Figure 1-1 Population of 17- to 21-Year Old Males, 1960-2000

Manpower shortages are not expected to disappear in the near future. Nor can they be quickly and easily rectified. As the availability of American youth declines, competition from the other Armed Services, the private business sector, and universities will only serve to aggravate current recruiting shortages and retention difficulties for the Navy. These trends may not pose a problem if the Cold War continues to thaw and the size of the active-duty Navy is substantially reduced. But the nature and timing of the strength cuts--as well as the duration of the new world peace--are all uncertain.

Recruiting the required number of qualified volunteers is not the only issue confronting the Navy. The quality of new recruits is also of major concern. Due to the advanced technology of today's military weapons and equipment, there has been a steadily increasing demand for highly capable personnel [Ref. 3]. This particular development raises several questions for military manpower planning. For example, should the Navy turn to enlisting more lower-quality recruits, including those who score below-average on the Armed Forces Qualification Test (AFQT)? In recent history, the Navy has tried to limit the use of personnel with below-average test scores. This may not be possible in the future because of the decreasing number of available youths. Now, more than ever, with the technical

complexities of today's fleet, the Navy will need highly-qualified recruits to man the fleet [Ref. 3].

It stands to reason that another aspect of concern is personnel retention, which is also related to issues of manpower quantity and quality. If retention can be maintained at a level that alleviates some of the burden on recruiting commands, the Navy would require fewer new recruits. An important benefit of higher retention is the corresponding reduction of training costs. During an individual's first enlistment, where the bulk of his or her training occurs, personnel costs are very high. In the current budgetary environment, it is essential for the Navy to initiate policies that will encourage high-quality recruits to remain in the Navy.

One approach to the problem of meeting these manpower demands involves expanding the military's supply of potential volunteers--including population groups that have historically been absent from the Navy for various reasons. To date, a major untapped and growing source of future manpower lies in the Hispanic population. Hispanic immigration, still largely uncertain, will play an increasingly important role in determining the size and composition of the national population. For example, under varying assumptions, Hispanics could account for between 20 and 54 percent of U.S. population growth over the next 25 years [Ref. 4].

In 1983, only three percent of the Navy was identified as being of Hispanic origin. This figure increased to five percent by 1988. However, there may be even more Hispanic-Americans available for military service in the future as their representation in the nation continues to grow. The total Hispanic-American population grew by 6.1 percent per year from 1970 to 1980, and the population is projected to increase by 6.8 percent per year throughout the 1980s. During the 1970s, while the national population only increased by 11.5 percent, the Hispanic-American population grew by 61 percent. This was an increase of over 14 million Hispanic-Americans. In 1983, persons of Hispanic origin comprised seven percent of the national population, with expected growth to 11 percent or more by the year 2010. Currently, the Hispanic population is approximately nine percent of the total U.S. population. [Ref. 5]

Table 1-1 shows the population size and growth rates of the three major racial/ethnic groups in the United States. As seen here, the Hispanic population is one of the fastest growing subgroups in the United States. This population subgroup is expected to increase at a rate that is over four-times greater than the growth rate for members of the white population.

TABLE 1-1

PROJECTED POPULATION SIZE AND ANNUAL GROWTH RATES, BY RACIAL/ETHNIC GROUP, 1990

RACIAL/ETHNIC GROUP	POPULATION SIZE (millions)	ANNUAL GROWTH RATE (percent)
WHITE	200.7	0.6
BLACK	31.2	1.8
HISPANIC	24.5	6.8
TOTAL	256.4	- -

Source: [Ref. 6]

Table 1-2 shows the projected composition of the Hispanic population in the United States by four subgroups. It can be seen here that more than two out of three Hispanics are of Mexican origin. In addition, it should also be noted that the proportion of the national population that is Hispanic is higher in the younger age groups. According to the 1980 Census, over 14 percent of Hispanic-Americans are in the primary age group for military enlistment (ages 18 to 23), compared with 12.9 percent of the total population. As time goes on, the Hispanic segment of the "age-eligible" population is expected to grow even more. This same census report states that 28.3 percent of the Hispanic population (compared with 21.1 percent of the total population) is between the ages of five and 17 years

TABLE 1-2

PROJECTED COMPOSITION OF U.S. HISPANIC POPULATION, BY SUBGROUP, 1990

HISPANIC SUBGROUPS	HISPANIC POPULATION PROJECTION (millions)	PERCENT OF NATIONAL POPULATION	PERCENT OF TOTAL HISPANIC POP.
MEXICAN-AMERICAN	16.9	6.7	68.8
PUERTO RICAN	2.8	1.1	11.6
CUBAN	1.2	0.5	4.8
OTHER HISPANIC	3.6	1.4	14.8
TOTAL	24.5	9.7	100.0

Source: [Ref. 6]

old. [Ref. 6] Therefore, the Hispanic population in general is not only growing, but relatively youthful.

This thesis considers the Hispanic population as a whole and as five distinct subgroups, including: Mexican-Americans, Puerto Rican-Americans, Cuban-Americans, South/Central Hispanic-Americans (those with origins in South or Central America), and Other Hispanic-Americans. During the ten-year period from 1970 to 1980, increases in the Hispanic population varied by subgroup. The largest increase (93 percent) was among Mexican-Americans. At the same time, Puerto Rican-Americans increased by 41 percent, Cuban-Americans by 47 percent, and Other Hispanic-Americans by 19 percent [Ref. 5]. The differences in subgroup percentages (for example, a 93 percent increase in

Mexican-Americans compared with a 47 percent increase in Cuban-Americans) is an indicator that the Hispanic subgroups are culturally and socially different, and should therefore be considered individually.

Table 1-3 shows the percentage of Hispanics and persons in the national population completing selected levels of education. As seen here, just 60 percent (compared with 82 percent of the national population) stay in school beyond the elementary level. The table also shows that only 44 percent of all Hispanics complete four years of high school, compared with 67 percent nationally. It further illustrates one of the main problems confronted by the Navy when using the high school diploma as a predictor of attrition for Hispanics. The Hispanic population in general has a high drop-out rate in both primary and secondary schools. Because the military's selection system places such importance upon high school completion, this factor may limit the number of Hispanics who are "qualified" for military service.

Hispanic-Americans are currently underrepresented in the Navy and in the military as a whole. The idea of proportional participation or perfect "representation" by minority groups in the military is open to political and social debate. As of yet, no one has been able to demonstrate empirically that population representation exercises a direct impact on the Navy's ability to perform

TABLE 1-3

PERCENTAGE OF HISPANICS AND PERSONS IN THE NATIONAL POPULATION COMPLETING SELECTED LEVELS OF EDUCATION
(Persons 25 years or older)

SELECTED LEVELS OF EDUCATION	HISPANIC POPULATION	NATIONAL POPULATION
Elementary School Only	40	18
Only 1-3 Years of High School	16	15
4 Years of High School	24	35
1-3 Years of College	12	16
4 Years of College or more	8	16
Total	100	100

Source: [Ref. 5:pp. 14-15]

its mission [Ref. 7]. Consequently, this thesis does not specifically address the issues of "representation" in considering the expanded role of Hispanics in the Navy.

As shown in Tables 1-1 and 1-2, Hispanic-Americans comprise a growing segment of the national population and, as yet, a major untapped manpower resource for the Navy. Many researchers and defense planners have observed that Hispanic-Americans are a very attractive source of naval personnel. Nevertheless, there is a conspicuous absence of research on this segment of the population, particularly with respect to participation of Hispanics in various phases of military service. Further study of this subject is clearly needed, so that manpower policy makers can gain a

better understanding of the most effective means for recruiting and retaining Hispanic-Americans.

It is the purpose of this thesis to aid in the research effort by creating a structure for analyzing the training school performance of Hispanic-American enlistees in the Navy. This was accomplished by developing a computerized data base, utilizing an extract of the Navy Enlisted Classification Tracking file (NECTRACK) and the Enlisted Training Tracking file (TRAINTRACK), provided by the Navy Personnel Research and Development Center. In addition, a review of literature was undertaken to provide a summary of available information on factors that may influence the performance of Hispanic-Americans in the Navy.

The effort of building a structure for analysis is described in Chapter II--including a discussion of background information on Hispanic-Americans and a description of the newly-developed data base. The new data base on Hispanics is then explored in Chapter III. The subject for analysis is the relationship between selected training outcomes and the educational level of Hispanic sailors. Educational level is used here to indicate whether an individual possesses a high school diploma, a high school equivalency certificate, or neither. This subject was selected because previous research has shown that the high school diploma is a primary indicator of a person's

adaptability to military life during the first-term of service (a good portion of which involves training).

Several recommendations and conclusions are offered in the final chapter concerning the application of the data base and the treatment of research variables. Further study is recommended using the data set developed for this thesis.

II. DEVELOPMENT OF A STRUCTURE FOR ANALYSIS

A. BACKGROUND INFORMATION ON HISPANIC-AMERICANS

The purpose of this section is to review research on the Hispanic population that has addressed topics of interest to the Navy. The topics discussed here include: the Hispanic-American population distribution in the United States; educational opportunities (high school diploma, drop-out rate, and English as a second language); unemployment; Hispanics in the military; and an overview of the differences among Hispanic subgroups. These subjects are interrelated. In many instances, the results in one area are directly affected by events in another area. For example, persons whose income is below the poverty level may not have the same educational opportunities as those whose income is greater. In this respect, unemployment may be the reason behind poverty (which may directly be affecting education), or the lack of education may be causing unemployment. Focusing on these areas will give the reader an insight into the social and cultural beliefs of the Hispanic-American population in general. Additionally, Hispanics have a good performance record in the military. A clear understanding of past performance should help recruiters in screening Hispanics for the U.S. Navy.

Data used in manpower studies are typically obtained from the decennial census. During the 1970s, data on Hispanics were based primarily on estimations. Not until 1980 did the Bureau of the Census compile separate statistics on Hispanics as a group. The majority of the background statistics, figures, and information in this thesis have been provided by the Department of Commerce, the Bureau of the Census, and the U.S. Department of Education. These demographic statistics were based on 1980 census data, with portions updated periodically throughout the 1980s.

Hispanic-Americans represent a unique and growing subgroup of the national population. In the military, persons in this subgroup are underrepresented. At a time when the supply of potential recruits is shrinking and budgets are being sliced, the Navy must investigate all possible markets for future sources of manpower. Hispanic-Americans are one such market. If Hispanics are to provide the Navy with a future source of manpower, the need to understand their social and cultural differences becomes very important. This literature review provides some views of the underlying causes of these differences.

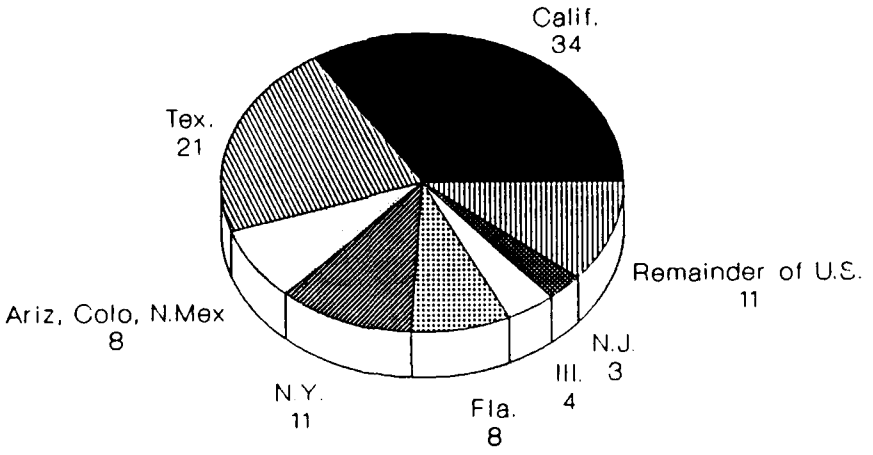
1. Hispanic-American Population Distribution

If the U.S. Navy were to target Hispanic-Americans in a recruitment effort, an understanding of this population would be very helpful in reducing recruiting costs. This

knowledge would enable the Navy to direct its recruiting efforts effectively.

In March of 1988, the Hispanic-American population was heavily centered in five Southwestern states. Over half of all Hispanic-Americans, for example, reside in California and Texas, with over one-third in California alone. At the same time, a total of 26 percent reside in New York, Florida, Illinois, and New Jersey. Approximately eight percent live in Arizona, Colorado, New Mexico, with 11 percent in the remainder of the United States. [Ref. 6]

Figure 2-1 depicts the several states in which Hispanic-Americans are concentrated.



Source: [Ref. 14]

Figure 2-1 Geographic Distribution of the Hispanic Population in Percentages: March 1988

There are five American urban areas where Hispanic-Americans represent a majority of all residents. These include: Laredo, Texas (91.5 percent), McAllen-Phar-Edinburg, Texas (81.3 percent), Brownsville-Harlingen-San Benito, Texas (77.1 percent), El Paso, Texas (61.9 percent), and Las Cruces, New Mexico (52.1 percent). [Ref. 8]

Almost 50 percent of the Hispanic-American population live in ten standard metropolitan areas. These areas are rather large. It is understandable, therefore, why the number of Hispanic-Americans account for more than 50 percent of the population in only one of these areas (El Paso, Texas) [Ref. 8]. Table 2-1 lists the ten standard metropolitan areas in which Hispanic-Americans are most heavily concentrated.

2. Educational Opportunities

The educational opportunities of Hispanic students have generated a great deal of debate in the United States. It has been suggested by Wood that children from minority or lower-socioeconomic groups do not receive the same benefits from their school systems as compared with mainstream children. It has been suggested that because Hispanic-Americans are the most urbanized population in the nation, their schools may be overcrowded or poorly equipped, or may have lower per-pupil budgets than do their mainstream counterparts in adjacent areas. [Ref. 2]

TABLE 2-1

THE TEN STANDARD METROPOLITAN AREAS WITH THE LARGEST NUMBER OF PERSONS OF HISPANIC ORIGIN, 1980

STANDARD METROPOLITAN AREAS WITH LARGEST NUMBER OF PERSONS OF HISPANIC ORIGIN	PERSONS OF HISPANIC ORIGIN (in millions)	PERCENT OF HISPANIC ORIGIN IN EACH AREA
Los Angeles-Long Beach, Ca	2.1	27.6
New York, NY-NJ	1.5	16.4
Miami, Fl	0.6	35.7
Chicago, Il	0.6	8.2
San Antonio, Tx	0.5	44.9
Houston, Tx	0.4	14.6
San Francisco-Oakland, Ca	0.3	10.8
El Paso, Tx	0.3	61.9
Riverside-San Bernardino, Ca	0.3	18.6
Anaheim-Santa Ana, Ca	0.3	14.8

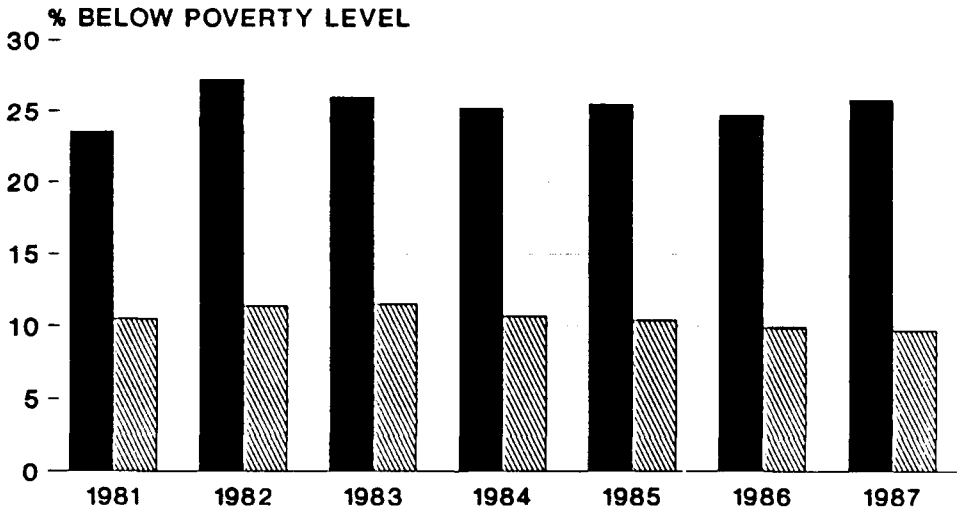
Source: [Ref. 8]

Wood suggests that these factors may lead to higher drop-out rates for Hispanic-Americans than for those in other ethnic or racial groups. He further observes that Hispanics generally have poorer reading achievement, higher repetition of grades, more overaged students, and lower rates of participation in extracurricular activities than do persons in the "mainstream" [Ref. 2]. This may cause Hispanics to lag behind the rest of the nation in educational preparation.

Low incomes may be adversely affecting the educational opportunities open to Hispanics. Since

Hispanics tend to concentrate in closed communities--and given that their incomes are generally low--it stands to reason that taxes may not be available for school systems. This may result in less than adequate schools.

Figure 2-2 shows the proportion of Hispanic and non-Hispanic families in the United States with incomes below the poverty level. The Table indicates that Hispanic-Americans have over two times as many families below the poverty level as do non-Hispanics.



Source: [Ref. 14]

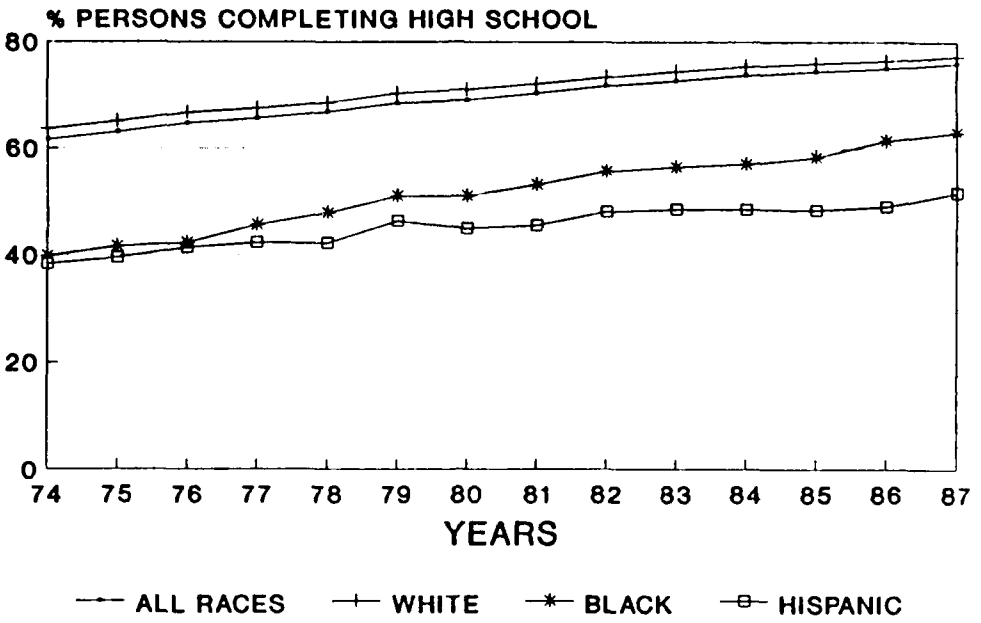
Figure 2-2 Proportion of Hispanic and Non-Hispanic Families with Income Below the Poverty Level, 1981 Through 1987

Lack of a high school diploma is considered a social stigma in our society, and employers as well as others suspect that a person without a diploma probably will not succeed. Most educators agree that the high school diploma is an indication that a person has the maturity and diligence to submit to routine courses and tests required for graduation. The diploma is also viewed as a symbol of a "rite of passage." [Ref. 2]

Figure 2-3 provides a comparison of the rate of high school completion for persons over the period from 1974 through 1987.

It is important to note here that the number of Hispanic high school graduates has been increasing since 1974, and that the numbers are continuing to increase. Although persons of Hispanic origin are still below the national norm (and people in the white segment of the population are the only ethnic group above the national norm), they demonstrate a positive (although slight) upward trend on this measure of educational attainment.

Table 2-2 indicates that over a 17-year period, the drop-out rates of Hispanics have been more than twice as great as those of whites, and substantially higher than those of blacks in the 1980s. (People who have received General Educational Development [GED] certificates are counted as "graduates" in this table.)



Source: U.S. Department of Commerce, Bureau of the Census, Population Characteristics, Educational Attainment in the U.S., Series P-20, No. 428, 1987.

Figure 2-3 Percent of Male Population 25 Years Old and Above Who Have Completed High School, by Racial/Ethnic Group 1974 Through 1987

Ramirez and Chavez state that Hispanic-American youths who drop-out of school will tend to do so because of outside responsibilities (such as family, financial, or work-related reasons), while non-Hispanic youths will be more likely to drop-out because of school-related problems. [Ref. 9]

TABLE 2-2

PERCENT OF MALE HIGH SCHOOL DROP-OUTS AMONG PERSONS 18-TO-21-YEARS-OLD, BY RACIAL/ETHNIC GROUP, SELECTED YEARS, 1970 THROUGH 1986

RACIAL/ ETHNIC GROUP	1970	1975	1980	1986
White	13.7	14.1	15.9	14.4
Black	33.0	29.1	27.0	17.2
Hispanic	*	28.3	42.3	33.9
All Groups	16.0	16.0	17.4	14.7

*--Data not available

Source: U.S. Department of Commerce, Bureau of the Census, Current Population Reports, Series P-20, Nos. 222, 303, 362, 392, and 409; and unpublished data, October 1987

Table 2-3 lists the top six reasons given by Mexican-American students for dropping out of predominantly Hispanic schools in Texas. This list of reasons is not all-inclusive, but it does account for over 76 percent of the sample. (The sample size is 275.) It is interesting to note that only 6.2 percent of the students gave "failing" as a reason for dropping out of school, whereas 29 percent gave either family or job reasons. Combine this with the 6.5 percent who gave the need for money as a reason, and it could be construed that external, as opposed to academic, reasons for dropping out of school were prevalent.

TABLE 2-3

REASONS GIVEN BY MALE MEXICAN-AMERICAN DROP-OUTS FOR LEAVING SIX TEXAS HIGH SCHOOLS, 1980

REASONS	PERCENTAGE
Family needed financial help	18.9
Not interested	16.4
To take a job	10.2
To enter armed forces	10.2
Needed money	6.5
Failing	6.2
Other Reasons	23.6
No reasons given	8.0
Total	100.0

Source: [Ref. 2:p. 29]

Wood feels that this conclusion supports the general impression regarding Hispanic-American education--mainly, that educational outcomes for Hispanics are largely due to various cultural, social, and economic complications or barriers, and that the failure of many Hispanic-Americans to complete high school is not necessarily reflective of academic achievement. [Ref. 2]

A unique set of training and performance problems may be created for the Navy in dealing with persons for whom English is a second language (that is, those people who rely on Spanish or some other language in everyday life). In fact, many see English language requirements as a major obstacle for some Hispanics in the Navy. But it is

important to note that, for many Hispanic-Americans, English is the primary language. This is especially true for those Hispanics who have lived in the United States for a long time or for most of their life. One researcher has summarized the need for reading proficiency in the Navy because of:

1. Standardized training being used by the Navy for all personnel.
2. The abundance of written guidelines (e.g., Bluejacket's Manual and Plan of the Day).
3. Technical equipment that requires maintenance manuals. [Ref. 10]

Within the ESL population, each person has a different ability level at which he or she functionally reads (or functionally understands) and writes the English language. For persons in the low extreme of this group, it is clear that serious difficulties can result that range from increased training costs to safety and disciplinary issues.

The first problem might occur during the initial training period (boot camp) when it may take much longer to instruct persons who have difficulty comprehending oral commands and oral or written instructions. This can become very costly, due to the added time needed for instruction.

For the Navy, many problems can result from people who have English as a second language, such as:

1. Personnel who are members of the ESL group may have difficultly filling out everyday forms used by the Navy.

2. Personnel may have discipline problems stemming from a lack of understanding when it comes to written rules.

3. People who have English as a second language may have difficulty in reading and understanding written safety instructions. This not only places the individual in danger, but also his or her shipmates. [Ref. 10]

An important question is: can people who do not have sufficient English language skills cope with today's highly technical and complex Navy? And, what is the minimum reading comprehension level needed to successfully complete required Navy schools? These questions have not been answered. The Navy has attempted to publish technical manuals that require a reading comprehension level of a ninth grader. A representative of the U.S. Army Recruiting Command reported that the average reading ability of the American military person is at the eighth-grade level [Ref. 11]. If recruits represent a national norm, and Hispanic-Americans as a group are falling below this norm, then this would only serve to make it more difficult for people with English as a second language to build credibility. It is important to remember that just because a person uses English as a second language does not necessarily mean that the person does not also have very good English comprehension skills--or that these skills cannot be achieved with proper instruction. A review of related

literature suggests that greater study is needed to provide more complete information about these issues for the Navy.

3. Unemployment

Hispanic-Americans are experiencing greater unemployment and educational problems compared with their nonminority counterparts. In some cases, Hispanics appear to be having more problems in these areas than either black or white youths [Ref. 2]. From an economic standpoint, there is some evidence to suggest that Hispanics (and other racial or ethnic minorities) are labor market "substitutes" for whites. That is, when unemployment rates are low for whites (as they presently are), there are less jobs for Hispanic-Americans [Ref. 12]. This "substitution" effect should encourage, and at the same time help, the Navy (when unemployment rates are low) in targeting Hispanic-Americans for recruitment.

Triandis states that from early childhood, many Hispanics are taught to be group-oriented, with the center of this group loyalty being the family [Ref. 13]. The military consequently provides conflicting opportunities for some Hispanics. The Navy is seen as an organization offering occupational training and employment security for many Hispanic-Americans who might not be given such opportunities by civilian institutions. But, on the other hand, family separations are a way of life in the Navy, and these separations may conflict with the cultural norms of

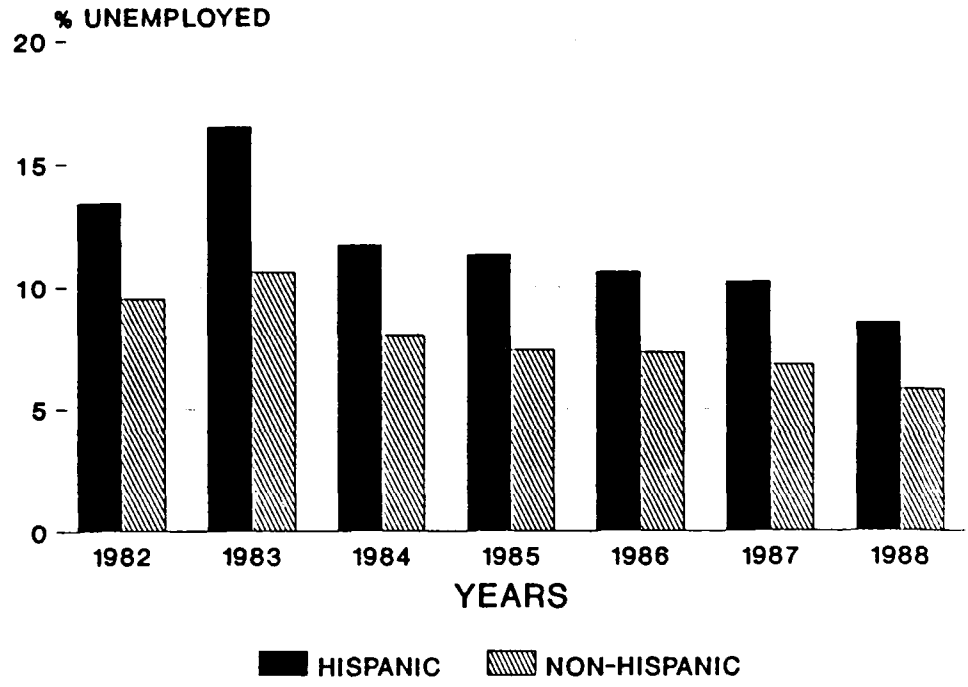
some groups in the Hispanic-American population. This may pose problems for the Navy if Hispanics were targeted during recruiting efforts.

Wood suggests that Hispanic-Americans may be less willing to change jobs once placed in a job [Ref. 2]. This may be partly due to the difficulty that persons in this group experience in finding a new job, or possibly due to imperfect job-market information. Job-market information may be imperfect because there is a lack of knowledge or resources available to make a sound choice. This often results in a decision for Hispanics of either accepting unemployment or moving to an area with better job opportunities. The family unit is a very important aspect of the Hispanic culture. Several generations of Hispanics tend to live in the same area. This often causes Hispanic workers to remain in the same area with their family and accept unemployment rather than look somewhere else for employment.

The March 1988 unemployment rates were generally the lowest since the economic recession of 1983. But the rate for Hispanics (8.5 percent) was still 2.7 percentage points higher than the rate for non-Hispanics (5.8 percent) [Ref. 14]. With very strong cultural beliefs, and the fact that Hispanics tend to remain in an area close to the family, unemployment rates may be misleading when evaluating

Hispanics. By the same token, the fact that Hispanics may not want to relocate may hinder recruiting efforts.

Figure 2-4 shows that the unemployment rates for Hispanics have been greater than those for non-Hispanics over the past seven years.



Source: [Ref. 14]

Figure 2-4 Unemployment Rates for Persons 16 Years Old and Above, by Hispanic and Non-Hispanic Categories, 1982-1988

4. Hispanics in the U.S. Military

Many analyses show that a high school diploma marks a level of educational attainment and emotional maturity that correlates well with success in the military. For Hispanic recruits, however, research literature suggests that the attainment of a high school diploma may be a slightly less reliable indicator of performance during the first term. The difference in performance between Hispanics who have a diploma and those who don't is not as great as the difference found between similar groups who are white. [Ref. 2]

The Navy also gauges performance differences through observed variations in separation patterns of individual service members. A 1981 study of enlistees released from active duty provided some interesting data concerning persons in the Hispanic-American population. Relatively more Hispanic-Americans (without high school diplomas) who were released from the military, apparently completed their obligated service than did whites or blacks. Also, proportionately fewer Hispanic non-graduates than white non-graduates were discharged for failure to meet minimum behavioral or performance criteria [Ref. 2]. This a very good indication of adaptability to life in the military.

Hispanics in the military tend to have generally lower attrition rates, regardless of educational level, when compared with their mainstream counterparts [Ref. 15].

Hispanics tend to complete their first-term of enlistment at higher rates than do whites or blacks. The reason for this is uncertain, but it may have to do with the fact that alternative employment opportunities (especially for Puerto Ricans, who make up 30 percent of Hispanics in the military) are fewer in number than those available to other groups. For example, the unemployment rate for Hispanic high school graduates is approximately equal to the unemployment rate of white high school drop-outs [Ref. 2]. This may suggest that Hispanics, on average, basically try harder to keep a job--and that, for some members of this group, the military is providing an alternative to unemployment.

As previously stated, Hispanic students have a tendency to be older than their mainstream counterparts in the same grade level. In part, this is due to repeating grades for various reasons, including difficulties in understanding the English language. An additional explanation is that, when Hispanics enter the U.S. school system, members of this group are not at the same level of education as their mainstream counterparts of the same age. Wood indicates that a slightly greater percentage of Hispanics enter the military than do whites or blacks after age 25. With age, it is expected that a certain maturity develops, thus enhancing one's ability to cope with a work situation [Ref. 2]. Actually, rates of first-term attrition

generally increase in direct relationship with increases in age (after a certain point) [Ref. 16].

Results from the "Profile of American Youth" study (a nationwide administration of the military's enlistment test battery) revealed that Hispanic-Americans tend to achieve higher scores on the Armed Forces Qualification Test (AFQT) than do blacks (and some other minorities) while whites tend to have the highest scores [Ref. 17]. Table 2-4 shows that some pattern of scoring holds true for young men who have joined the Navy between 1985 and 1989. As seen here, white recruits tend to have the highest scores, followed in order by Hispanics and Blacks. It is also interesting to note that over the past four years, the average AFQT percentile score for Hispanic male recruits in the Navy has exceeded the average (50th percentile) for the nationwide population of American youth.

TABLE 2-4

AVERAGE AFQT PERCENTILE SCORE FOR MALE RECRUITS IN THE NAVY, BY RACIAL/ETHNIC GROUP, FISCAL 1985-1989

FISCAL YEAR	WHITE	BLACK	HISPANIC
1985	62.5	41.8	48.5
1986	62.8	42.5	50.1
1987	63.1	42.7	51.7
1988	63.5	43.0	53.0
1989	63.3	43.1	53.2

Source: Defense Manpower Data Center (DMDC), Monterey, California, December 1989

As a group, Hispanic-Americans have done comparatively well in the military. Members of this group also appear to be improving, on average, in many of the previously discussed areas--educational completion levels are increasing and high school drop-out rates are declining. This should serve to enhance the propensity of Hispanics to serve in the military.

The issue was aptly put by Eitelberg in a paper on "American Demographic Trends and National Security":

> Because the Hispanic population is both growing and youthful, and is projected to constitute a larger portion of this country's labor pool by the end of this century, it should be viewed as an important manpower resource for the military. [Ref. 18]

5. A Closer Look at Hispanic Subgroups

The Hispanic population in this country can be divided into several subgroups, including: Mexican-Americans, Puerto Ricans-Americans, Cuban-Americans, and Other Hispanic-Americans. These subgroups are discussed below.

a. Mexican-Americans

Mexican-Americans are probably the most unique of the Hispanic subgroups. This subgroup consists of both those who have been in the United States for generations and many who are very recent immigrants from Mexico. Originally a rural and agricultural people in the early 1900s, today Mexican-Americans have become more urbanized than the mainstream population [Ref. 6]. Table 2-5 lists the four

states where more than eight out of ten Mexican-Americans have settled.

TABLE 2-5

PERCENT OF MEXICAN-AMERICANS WHO ARE RESIDING IN SELECTED STATES, 1989

SELECTED STATES	PERCENT
California	41.6
Texas	31.5
Illinois	4.7
Arizona	4.5
Total	82.3

Source: U.S Department of Commerce, Bureau of the Census, Ethnic and Spanish Branch, November 1989

Mexican-Americans are also the largest of the Hispanic subgroups--accounting for close to 60 percent of all persons of Hispanic origin in the United States [Ref. 5]. In 1985, there were 12.8 million Mexican-Americans in the United States, with a yearly growth rate of 9.3 percent. By 1990, the Bureau of the Census expects that the Mexican-American population will exceed 16.8 million [Ref. 5]. At this time, it is very difficult to predict what effect recent changes in immigration laws will have on the growth rate of Mexican-Americans.

The median age of Mexican-Americans is 21.4 years, compared with a median age of 30.1 years for the

total U.S. population [Ref. 6]. In the military, Mexican-Americans are an underrepresented subgroup. They tend to have a low attrition rate during the first-term of enlistment. Also, they have the highest mean AFQT score of the various Hispanic subgroups [Ref. 15].

b. Puerto Rican-Americans

Puerto Rican-Americans are U.S. citizens by birth, and they have free access to the mainland. They are the most metropolitan of the Hispanic subgroups in the United States, and New York City has been their center since the early 1900s. Most have left Puerto Rico to come to America in search of employment. Of these, many are migrant workers who move back and forth between the mainland and Puerto Rico. There are also those who are born on mainland soil. Each of these two groups are quite distinct and behave differently. [Ref. 5]

Although Puerto Rican immigration has been decreasing over the past few decades, Puerto Rican-Americans still have an annual growth rate of 4.1 percent (mostly from the mainland subgroup where there is a high fertility rate) [Ref. 6]. Table 2-6 lists the three states where Puerto Rican-Americans are concentrated.

One of the most noticeable characteristics of the Puerto Rican subgroup is its poverty level. The Bureau of the Census states that in 1980, 50 percent of mainland Puerto Ricans earned a yearly income below $10,000 [Ref. 5].

TABLE 2-6

PERCENT OF PUERTO RICAN-AMERICANS WHO ARE RESIDING IN SELECTED STATES, 1989

SELECTED STATES	PERCENT
New York	49.0
New Jersey	12.1
Illinois	6.4
Total	67.5

Source: U.S. Department of Commerce, Bureau of the Census, Ethnic and Spanish Branch, November 1989

The median age of Puerto Ricans is 20.7 years (the youngest of all Hispanic subgroups), compared with a median age of 30.1 years for the total U.S. population [Ref. 6]. Puerto Ricans are slightly overrepresented in the military, accounting for approximately 30 percent of all active-duty enlisted personnel. The mean AFQT scores and first-term attrition rates for Puerto Rican-Americans are about average among the various Hispanic subgroups [Ref. 15].

c. Cuban-Americans

Cuban-Americans are often described in the literature as "industrious" and "determined" [Ref. 6]. Statistics show that, on average, this group is relatively well integrated in the business community and affluent [Ref. 6]. Cuban-Americans can be viewed as falling within two distinct groups that tend to behave differently--that is,

Cuban refugees and the children of these refugees. Cuban refugees tend to be older and well-established in their community. In 1980, approximately 30 percent of these refugees had an annual income greater than $30,000. The children of these refugees have either been brought to America at a very young age or have been born here; they are bilingual and have an above-average educational level. [Ref. 5] Table 2-7 shows the three states in which the majority of Cuban-Americans have settled.

TABLE 2-7

PERCENT OF CUBAN-AMERICANS WHO ARE RESIDING IN SELECTED STATES, 1989

SELECTED STATES	PERCENT
Florida	58.5
New Jersey	10.1
New York	9.6
Total	78.2

Source: U.S. Department of Commerce, Bureau of the Census, Ethnic and Spanish Branch, November 1989

Compared with other Hispanic-American subgroups, Cuban-Americans are characterized by a relatively high proportion of elderly persons. In 1980, the median age of Cuban-Americans was 33.5 years, which was higher than the total U.S. population. Almost half of all persons in this subgroup are above the age of 35 [Ref. 6]. In the military,

Cuban-Americans are underrepresented and they have historically experienced a relatively high rate of first-term attrition. The mean AFQT score of persons in this subgroup is generally higher than that of those in other Hispanic-American subgroups [Ref. 15].

d. Other Hispanic-Americans

The "Other" Hispanic-American subgroup was originally assumed to be a minor category, but persons in the "Other" subgroup account for 21 percent of all Hispanic-Americans. The size of the "Other" Hispanic-American subgroup is such that it ranks second among the subgroups. However, the combination of "Other" Hispanics has an annual population growth rate that is relatively low, at 1.9 percent. The "Other" subgroup was established to account for Hispanic-Americans from Central and South America, Spain, the Canary Islands, and children of a marriage between a Hispanic and non-Hispanic, or mixed Hispanic marriages. [Ref. 6]

Table 2-8 lists the three states where "Other" Hispanic-Americans are concentrated.

This group has a median age of 23.3 years. It also has a substantial portion of older persons (48 percent above the age of 30). The Other subgroup has the highest level of educational attainment and the highest percentage of white-collar workers (43.6 percent) of all Hispanic-American subgroups. [Ref. 6]

TABLE 2-8

PERCENT OF OTHER HISPANIC-AMERICANS WHO ARE RESIDING IN SELECTED STATES, 1989

SELECTED STATES	PERCENT
California	24.7
New York	18.3
New Mexico	7.9
Total	50.9

Source: U.S. Department of Commerce, Bureau of the Census, Ethnic and Spanish Branch, November 1989

In summary, military manpower and personnel officials tend to view Hispanic-Americans as a single entity. However, this group--"Hispanics"--is actually composed of very different subgroups. Those who come to the United States from different countries tend to exhibit different patterns of assimilation in the American culture and have different experiences in the areas of education, employment, and the military. Previous research has consistently demonstrated the fact of inter-group heterogeneity. There is no homogeneous "Hispanic" subculture to stand in contrast to the mainstream culture. Consequently, any broad generalization of Hispanic-American differences can be deceptive [Ref. 19].

6. Summary

Navy manpower issues are a continuing topic of study due to the high cost of manpower and concerns about

readiness. Morey and McMann explain that, in making design decisions for weapon systems, the Department of Defense takes into account projections of the quality and quantity of new recruits for future years [Ref. 20]. The declining population of youth and the American "birth dearth," have caused many defense planners to look at "alternative" sources of manpower for the All-Volunteer Force. Hispanic-Americans are an otherwise untapped resource--historically underrepresented in the military, yet increasing relatively rapidly as a proportion of the general population. There are some very good reasons why the Navy should be studying this population to see if it can improve or increase the participation of persons from this "alternative" source. In any case, the Hispanic population is youthful and growing; and this in itself makes the Hispanic population an important manpower resource for the Navy--today and in the future.

B. DATA BASE DEVELOPMENT

This section provides a description of the data and the particular variables used for preliminary analysis. Preliminary analysis was conducted to verify the utility and operability of these data. The section then concludes with information concerning the actual analytical techniques employed in the preliminary evaluation of these data sets.

Considerable time and effort were required to transform the data and make them usable on the Naval Postgraduate School (NPS) computer system. Two data sets were provided by the Training and Technology Department of the Navy Personnel Research and Development Center (NPRDC) in San Diego, California. Both were originally formatted to be compatible within a large Converstional Monitor System (CMS) environment. Therefore, since the NPS computer has a relatively small CMS environment, the data required significant reformatting to make the two data sets usable by SAS within the larger capacity Multiple Virtual Storage (MVS) environment available at NPS.

These two data sets were composed of records for individuals. Each data set was separated into two basic sections. The first section of the data set contained information on the individual that does not change over time. The second section contained information which is periodically updated and may be considered an appendage to the first section. Each update was added to an individual's file rather than altering data from a previous update. In this manner, a historical track was maintained for each individual.

The actual data transformation required the "splicing" of an individual's first section to each of the updated records. This allowed for accurate processing of the data; however, it also led to redundant first section information

concerning the individual. Care must be exercised when using these data sets to prevent errors brought about by this redundant information. The data currently exist in SAS-formatted data sets and may be read directly into MVS for batch processing.

The two primary data sets were provided by NPRDC in fixed record length, flat file format on non-labelled, IBM open reel tapes with a density of 6250 bytes per inch. These data sets are named NECTRACK, Navy Enlisted Classification Tracking File, and TRAINTRACK, the Enlisted Training Tracking File. Together they comprise the entire body of data used in this thesis.

The first data set, NECTRACK, contains basic demographic information about individuals, and is constructed from the Enlisted Master File at the Navy Military Personnel Command (NMPC). This data set includes social security number, gender, ethnic group of the individual, birth place, AFQT scores, and other information as shown in Appendix A. NECTRACK is updated quarterly to post changes to an individual's record. The actual update is triggered by an individual's attainment of a Navy Enlisted Classification code (NEC), the code that an enlisted person earns upon graduation from a Navy specialty school. Each update includes fiscal year and quarter, rate code of the member, pay grade, primary Navy enlisted classification code (PNEC),

end of active obligated service (EAOS), enlistment information, and other discriptors (as shown in Appendix A).

The second data set, TRAINTRACK, was developed under the sponsorship of the Deputy Chief of Naval Operations for Manpower, Personnel and Training (OP-01) [Ref. 21]. This file was designed to be a cumulative record of an individual's training episodes while in the Navy. TRAINTRACK contains basic service entry information on members including: social security number, name, apprenticeship rate, boot camp information, security clearance, school preferences and other information as shown in Appendix B. TRAINTRACK is actually a composite data set that draws upon information already contained in the Student Master File (SMF), the Survival Tracking File (STF), the Support Program for Incentive, Retention and Training (SPIRIT) data base, and the Chief of Naval Education and Training (CNET) cost files. TRAINTRACK is updated at the end of each fiscal year to post changes to an individual's record. To update the file, NPRDC extracts information from the previously described data bases and merges it with existing information in TRAINTRACK. Thus, an individual's record grows by the number of training episodes that have occurred during the previous fiscal year. All individual training histories dating back to 1979 are kept, including information on members who have left the service. The update includes: pay grade, NEC, course type, graduation

date, academic/non-academic setbacks, taxpayer cost, and other information (as shown in Appendix B).

The data provided by NPRDC were an extract of Hispanic Naval personnel drawn from the global NECTRACK data base. These data are longitudinal, covering the period from October 1977 through March 1989. This extract was developed by using the variable "ETHNIC" to restrict the data to members of the five Hispanic subgroups available in NECTRACK, including: Mexican-Americans, Puerto Rican-Americans, Cuban-Americans, South and Central Hispanic-Americans, and Spanish-Americans. In previous chapters of this thesis, South and Central Hispanic-Americans and Spanish-Americans were combined into a group called "Other." This combination of subgroups was used because of limited information on the precise country of origin of some Hispanic-Americans in earlier surveys and studies.

A common variable to both the NECTRACK and TRAINTRACK data bases is the social security number or SSN. By using the SSNs of individuals in the Hispanic-American portion of NECTRACK, TRAINTRACK was sorted to ensure inclusion of exactly the same individuals in both data sets. TRAINTRACK, however, covers the period from the beginning of fiscal 1979 to the beginning of fiscal 1989.

All individuals in the data base have voluntarily decided to join the Navy and all have successfully passed through the Navy's screening and classification system. The

extract thus suffers from selectivity bias, since individuals who have not volunteered (and those who did not pass entrance screening) are not represented in the data set. Applying conclusions from these analyses to an unrepresented portion of the population could lead to errors. Therefore, any inferences drawn from this data set concerning the unrepresented segment of the Hispanic-American population must be made with caution.

III. PRELIMINARY ANALYSIS: THE RELATIONSHIP BETWEEN SELECTED TRAINING OUTCOMES AND THE EDUCATIONAL LEVEL OF HISPANIC SAILORS

The Navy prefers to recruit high school graduates. This is because high school graduates (persons with traditional diplomas) are less likely than nongraduates to leave the Navy before completing a first-term of enlistment. Individuals who possess a high school diploma are thus seen as more "adaptable" to military life and more persistent in their general approach to education and work. Because high school drop-outs and persons with equivalency certificates are much more likely to be discharged for unsuitability, the Navy requires that they achieve relatively higher scores on the AFQT. The AFQT scores are used as a predicator of "trainability" because they have been found to correlate with success in training. (The Navy also employs other criteria for evaluating applicants, including a technique called SCREEN, that produces a general score or indicator of the individual's potential for successful service.)

Individuals are assigned to training primarily on the basis of their scores on one of several aptitude composites (derived from combinations of subtests on the Armed Services Vocational Aptitude Battery). The aptitude composites are chosen and applied by the Navy because they have been shown to predict training performance for broad classes of

occupations. The actual "job-person match" for new recruits is accomplished with the aid of a computerized monitoring and reservation system known as CLASP. This system allows the Navy to incorporate five "utility-generating components" within the assignment process--striving to achieve maximum training school success, optimal matching of an individual's aptitude level with job complexity, optimal matching of an individual's preferences with Navy requirements, orderly fill rates within Navy jobs, and minority representation within all Navy positions. [Ref. 22]

Previous research suggests that the high school diploma may not be as valuable in predicting the "adaptability" of Hispanic-American sailors as it is for predicting that of "mainstream" sailors during the first-term of enlistment. As previously noted, the diploma is not viewed by the Navy as an indicator of academic achievement as much as a measure of the "stick-to-itiveness" of those who may possess it [Ref. 22].

Given that the high school diploma may be of limited utility in predicting the first-term attrition of Hispanic-American recruits, the question then arises: does the diploma bear any measurable relationship to other areas of performance, such as success in training? The high school diploma is not used directly as a criterion for assigning new recruits to Navy jobs (though it may be required for training in specific ratings), but it may say something

about personal attributes or abilities related to success in training. The answer to the question posed here may thus prove to be important in any future policy decision concerning the use of educational level as an enlistment standard for Hispanic-Americans.

This preliminary analysis seeks to provide some added insight concerning the relevance of educational standards for Hispanic youths seeking enlistment in the Navy. However, it should be noted that the process of assigning enlistees to training is often quite complicated, and it is based on a system that strives to ensure a high level of training completion by individuals. Since test scores are used as a primary device for making training assignments, the assumption is that educational level should not necessarily be an important factor in training school performance.

A. METHODOLOGY

The utility of the data bases was explored by conducting a preliminary analysis of the relationship between selected training outcomes and the educational level of Hispanic sailors. To analyze of the two data bases, release 5.18 of the Statistical Analysis System (SAS) software was used on the Naval Postgraduate School's IBM 3033 mainframe computer [Refs. 23,24]. The data were restricted to Navy enlisted men who were born after 1959 and were serving in their first

enlistment. The date of birth restriction was specifically selected since it coincides with an expected high school graduation year of 1977--the same year tracking began in the NECTRACK data base. These constraints placed on the global NECTRACK data base resulted in a sample size of 11,605 male enlistees.

From this point, the Hispanic members were subdivided into three primary groups according to educational background: (1) traditional high school diploma graduates or those with education at the postsecondary school level (HSDGs, with a sample size of 4640 male enlistees); (2) those who do not possess a high school diploma or an equivalency certificate (NHSDGs, with a sample size of 3628 male enlistees); and (3) those with certificates of completion, GEDs, certificates of attendance, correspondence secondary school certificates, adult education diplomas or home-study secondary school certificates (CERTS, with a sample size of 3337 male enlistees). These three primary groups were further divided into the five Hispanic subgroups described previously.

The variables chosen for exploratory analyses of the data base were as follows:

NECTRACK DATA SET:

Variable	Description
AFQT	Armed Forces Qualification Test score.
ED_YEARS	The total number of years of education.
PAYGRADE	The individual's pay grade.
PNEC	The individual's most recent primary NEC.

TRAINTRACK DATA SET:

Variable	Description
PREF1	The individual's school or General Detailing (GENDET) first preference.
ACADSTBK	The total number of academic setbacks a student incurred during a particular Navy school.
NONACSBK	The total number of non-academic setbacks a student incurred during a particular Navy school.
ACCELNUM	The total number of times a student was assigned to an earlier (set ahead) class during a particular Navy school.
INTERRUP	The total number of times a student was placed in a hold status after the convening date of a particular Navy school.
STUDACT	A code for the indication of final school action prior to the student's transfer or discharge, e.g., academic attrite or non-academic attrite.

Frequency analysis of each of these variables was chosen as the preferred analytical technique. Additionally, Chi-square tests were conducted on select categorical variables within each Hispanic-American subgroup. The assumed null hypothesis of the Chi-square test is that the relationship

between given variables is one of statistical independence [Ref. 25]. Chi-square tests can indicate whether high school graduates, non-high school graduates, and other educational certificate holders behave as though they were independent from the variables being considered [Ref. 25]. Four variables were chosen for these tests: ACADSTBK, NONACSBK, ACCELNUM, and INTERRUP. Through the use of these four variables, it is possible to gain information on differences in academic performance associated with the three levels of education within each Hispanic-American subgroup.

B. RESULTS OF EXPLORATORY ANALYSIS

1. Educational Level

The data were first explored to establish the exact percentages of individuals with each level of education for each Hispanic-American subgroup. It was found that differences exist in the percent of HSDGs, NHSDGs or CERTs within each subg up, as shown in Table 3-1.

Most Hispanic men in the sample are high school graduates (40 percent). Almost one-third of the sample are non-high school graduates (31.3 percent), followed by a slightly smaller percentage of persons with a high school equivalency certificate (28.7 percent). This basic pattern is fairly consistent for each Hispanic-American subgroup. The proportions of high school graduates are largest for

TABLE 3-1

PERCENTAGE DISTRIBUTION OF HISPANIC-AMERICAN NAVY MEN IN THE SAMPLE POPULATION, BY EDUCATIONAL LEVEL AND HISPANIC SUBGROUP

HISPANIC SUBGROUP	HSDG	NHSDG	CERT	TOTAL
MEXICAN-AMERICAN (n = 4015)	40.5	31.2	28.3	100.0
PUERTO RICAN-AMERICAN (n = 2029)	47.0	30.3	22.7	100.0
CUBAN-AMERICAN (n = 274)	40.1	35.4	24.5	100.0
SPANISH-AMERICAN (n = 5003)	35.9	31.9	32.2	100.0
SOUTH/CENTRAL HISPANIC-AMERICAN (n = 284)	54.2	25.0	20.8	100.0
TOTAL SAMPLE POPULATION (n = 11,605)	40.0	31.3	28.7	100.0

* HSDG--High School Diploma Graduate
NHSDG--Non-High School Graduate
CERT--Holder of High School Equivalency Certificate

Hispanics from South/Central America (54.2 percent) and Puerto Rico (47 percent) and lowest for those of Spanish origin (35.9 percent).

2. Years of Education

A frequency analysis conducted on the variable ED_YEARS yielded the results summarized in Table 3-2 below. The range was from six to 20 years of education.

TABLE 3-2

MEAN YEARS OF EDUCATION FOR HISPANIC-AMERICAN NAVY MEN, BY HISPANIC SUBGROUP

HISPANIC SUBGROUP	MEAN YEARS OF EDUCATION	STANDARD DEVIATION
MEXICAN-AMERICAN	11.8	1.01
PUERTO RICAN-AMERICAN	12.0	1.28
CUBAN-AMERICAN	11.8	1.19
SPANISH-AMERICAN	11.6	1.18
SOUTH/CENTRAL HISPANIC-AMERICAN	11.9	1.24
TOTAL SAMPLE POPULATION	11.6	1.15

The mean years of education are closely grouped near 12, since proportionally more recruits have a high school diploma. The differences in standard deviations indicate the dispersion of years of education for each Hispanic-American subgroup--greatest for those from Puerto Rico (1.28) and smallest for sailors of Mexican origin (1.01).

3. Training School Completion

Greater than 80 percent of the individuals in this data set who start a Navy school ultimately complete that school, as shown in Table 3-3. It should be noted at this point that Table 3-3 applies to all Navy schools, and the degree of difficulty between separate schools may vary.

TABLE 3-3

NAVY SCHOOL COMPLETION PERCENTAGES FOR HISPANIC-AMERICAN MEN, BY EDUCATIONAL LEVEL AND HISPANIC SUBGROUP

HISPANIC SUBGROUPS	HSDG	NHSDG	CERT*
MEXICAN-AMERICAN	86.5	88.8	88.4
PUERTO RICAN-AMERICAN	82.7	88.2	88.3
CUBAN-AMERICAN	89.4	87.9	97.4
SPANISH-AMERICAN	87.3	84.4	86.8
SOUTH/CENTRAL HISPANIC-AMERICAN	83.7	83.9	92.9
TOTAL	85.9	86.8	87.9

*--Cert includes: GED, Adult Education Diplomas, Certificates of Attendance, Secondary School Correspondence Diploma, and other non-traditional equivalency diplomas.

**--HSDG--High School Diploma Graduate
NHSDG--Non-High School Diploma Graduate
CERT--Holder of High School Equivalency Certificate

Persons in each Hispanic-American subgroup have similarly high rates of training completion for each of the three educational levels. However, the training completion rates for persons who do not possess a diploma tend to be slightly above those of persons who do possess a diploma.

4. Paygrade

There are greater percentages of NHSDGs and CERTs than HSDGs concentrated in pay grade E-2 and below for each of the Hispanic-American subgroups at the time they receive their first NEC (and are entered in the TRAINTRACK file). These percentages are shown in Table 3-4.

TABLE 3-4

PERCENT OF HISPANIC-AMERICAN FIRST-TERM NAVY MEN IN PAY GRADE E-2 OR BELOW, BY EDUCATIONAL LEVEL AND HISPANIC SUBGROUP

HISPANIC SUBGROUP	HSDG	NHSDG	CERT
MEXICAN-AMERICAN	67.6	95.8	91.4
PUERTO RICAN-AMERICAN	43.5	94.5	94.6
CUBAN-AMERICAN	60.0	95.9	97.0
SPANISH-AMERICAN	73.3	97.3	95.5
SOUTH/CENTRAL HISPANIC-AMERICAN	7.8	97.2	91.5
TOTAL SAMPLE POPULATION	64.7	89.5	93.9

These data indicate that CERTs and NHSDGs receive their first NEC at junior levels of seniority compared with HSDGs. For example, 64.7 percent of the HSDGs are E-2 or below, while the remaining 35.3 percent are above this level. In this sense, HSDGs demonstrate a behavior that differs from NHSDGs and CERTs. It appears that a larger percentage of HSDGs may be either going to longer technical schools or graduating from boot camp at a higher pay grade than NHSDGs and CERTs.

5. Technical Ratings

Analyses reveal a difference in the percentages of HSDGs, NHSDGs, and CERTs who are in technical ratings as opposed to non-technical ratings. This is true for each Hispanic-American subgroup. Technical ratings in this chapter include the following: Medical Field Service Technicians (NEC 8404), Electronic Equipment and Repairmen

(NEC 9710), Communications and Intelligence Specialists (NEC 9720), Electrical/Mechanical Equipment Repairmen (NEC 9760), Craftsman (NEC 9770), and Other Technical and Allied Specialists (NEC 9740). These six Navy Enlisted Classification codes (NECs) were chosen because they represent over 98 percent of the sample population in each respective Hispanic-American subgroup. Results of the technical rating analysis are shown in Table 3-5.

TABLE 3-5

PERCENT OF HISPANIC-AMERICAN NAVY MEN IN THE SAMPLE POPULATION WITH A TECHNICAL RATING, BY EDUCATIONAL LEVEL AND HISPANIC SUBGROUP

HISPANIC SUBGROUP	HSDG	NHSDG	CERT
MEXICAN-AMERICAN	30.4	38.9	40.6
PUERTO RICAN-AMERICAN	27.1	36.8	39.0
CUBAN-AMERICAN	28.2	34.1	38.8
SPANISH-AMERICAN	32.5	41.7	42.5
SOUTH/CENTRAL HISPANIC-AMERICAN	35.6	42.2	33.9
TOTAL SAMPLE POPULATION	30.8	39.9	41.1

The expectation was that HSDGs would comprise the greatest percentage of personnel in technical ratings. However, in this sample population, HSDGs have the lowest percentage of individuals with technical ratings. As previously noted, NHSDGs and CERTs are required to have higher AFQT scores than HSDGs to qualify for enlistment. Higher scores are required of these individuals because they

are twice as likely as HSDGs to leave the Navy before completing a first-term of enlistment. In Table 3-6, mean AFQT percentile scores of the sample population are shown by educational level and Hispanic subgroup.

TABLE 3-6

MEAN AFQT PERCENTILE SCORE OF HISPANIC-AMERICAN NAVY MEN, BY EDUCATIONAL LEVEL AND HISPANIC SUBGROUP

HISPANIC SUBGROUP	HSDG	NHSDG	CERT
MEXICAN-AMERICAN	54.4	55.9	56.7
PUERTO RICAN-AMERICAN	49.8	57.0	55.2
CUBAN-AMERICAN	62.7	59.0	58.1
SPANISH-AMERICAN	59.2	62.3	61.9
SOUTH/CENTRAL HISPANIC-AMERICAN	55.0	58.1	59.2
TOTAL SAMPLE POPULATION	55.5	59.0	59.1

The lowest mean AFQT percentile scores for each subgroup except Cuban-Americans are found for HSDGs. This result may help to explain why proportionately more NHSDGs and CERTs than HSDGs are assigned to technical ratings--assuming that technical ratings tend to require persons with higher test scores (and AFQT scores correlate with other test composite scores used to place recruits in technical training).

6. School Preference

An extremely small number of individuals in the sample population indicated a preference for any specific type of training. No pattern or concentration of preference

was noted in the data set. Perhaps the only point to note is the fact that very few Hispanic-Americans indicate a preference for any type of technical training (according to the data set used here).

7. Academic Setbacks

Some enlistees who attend Navy schools receive "setbacks" (placement in a class with a later completion date) for reasons of academic performance. In this way, it is hoped that the individual will improve his or her academic standing. Frequency analysis of academic setbacks for the sample population are presented in Table 3-7.

TABLE 3-7

PERCENT OF HISPANIC-AMERICAN NAVY MEN IN THE SAMPLE POPULATION WHO RECEIVED A SETBACK IN SCHOOL FOR ACADEMIC REASONS, BY EDUCATIONAL LEVEL AND HISPANIC SUBGROUP

HISPANIC SUBGROUP	HSDG	NHSDG	CERT
MEXICAN-AMERICAN	2.1	2.0	3.1
PUERTO RICAN-AMERICAN	4.4	5.3	5.3
CUBAN-AMERICAN	0.0	3.0	2.6
SPANISH-AMERICAN	1.1	3.1	3.0
SOUTH/CENTRAL HISPANIC-AMERICAN	0.0	1.8	4.8
TOTAL SAMPLE POPULATION	2.2	3.1	3.4

Within each Hispanic-American subgroup except Mexican-Americans, HSDGs received the smallest percentage of academic setbacks. Also, each Hispanic-American subgroup

varied with respect to academic setbacks within the three educational levels.

Chi-square analyses showed the Spanish-American subgroup was the only one that demonstrated a statistically significant relationship (above the 95 percent level of confidence) between the occurrence of an academic setback and educational level. Further research into the exact nature of this relationship is beyond the scope of this study. It was expected that no Hispanic-American subgroup would demonstrate statistically significant independence between educational level and academic setback.

8. Non-Academic Setbacks

Some enlistees who attend Navy schools receive a "setback" for non-academic reasons. These reasons vary but include situations unrelated to an individual's academic performance, such as illness or emergency leave. In this way, an individual is provided the opportunity to repeat certain instruction that is required for successful completion of the school. Frequency analyses of non-academic setbacks for the sample population are presented in Table 3-8.

Within each Hispanic-American subgroup (except for Cuban-Americans), HSDGs have the smallest proportion of non-academic setbacks while NHSDGs have the highest proportion. Also, each Hispanic-American subgroup experiences setbacks at different rates across educational level. For example,

TABLE 3-8

PERCENT OF HISPANIC-AMERICAN NAVY MEN IN THE SAMPLE POPULATION WHO RECEIVED A SETBACK IN SCHOOL FOR NON-ACADEMIC REASONS, BY EDUCATIONAL LEVEL AND HISPANIC SUBGROUP

HISPANIC SUBGROUP	HSDG	NHSDG	CERT
MEXICAN-AMERICAN	2.7	4.2	4.1
PUERTO RICAN-AMERICAN	3.3	5.5	4.7
CUBAN-AMERICAN	6.1	3.0	0.0
SPANISH-AMERICAN	2.5	6.5	5.3
SOUTH/CENTRAL HISPANIC-AMERICAN	2.2	5.4	2.4
TOTAL SAMPLE POPULATION	2.9	5.4	4.6

within the Cuban-American subgroup, 6.1 percent of HSDGs have non-academic setbacks compared with 3 percent of NHSDGs and no CERTs. At the same time, 2.2 percent of HSDGs in the South/Central Hispanic-American subgroup have non-academic setbacks, compared with 5.4 percent of NHSDGs and 2.4 percent of CERTs.

Chi-square analyses showed the Cuban-American and Spanish-American subgroups were the only ones that demonstrated a statistically significant relationship (above the 90 and 95 percent level of confidence, respectively) between the occurrence of a non-academic setback and the educational level of the sample population. Further research into the exact nature of this relationship is beyond the scope of this study.

9. Academic Accelerations

Academic accelerations (placement into a class with an earlier completion date) are available to qualified enlistees attending Navy schools. In this way, an individual is provided the opportunity to advance in his or her training as a result of proven academic ability or subject knowledge. Frequency analyses of academic accelerations for the sample population are presented in Table 3-9.

TABLE 3-9

PERCENT OF HISPANIC-AMERICAN NAVY MEN IN THE SAMPLE POPULATION WHO RECEIVED AN ACCELERATION IN SCHOOL, BY EDUCATIONAL LEVEL AND HISPANIC SUBGROUP

HISPANIC SUBGROUP	HSDG	NHSDG	CERT
MEXICAN-AMERICAN	0.0	0.2	0.1
PUERTO RICAN-AMERICAN	0.2	0.0	0.0
CUBAN-AMERICAN	0.0	0.0	0.0
SPANISH-AMERICAN	0.1	0.1	0.0
SOUTH/CENTRAL HISPANIC-AMERICAN	0.0	0.0	0.0
TOTAL SAMPLE POPULATION	0.1	0.1	0.1

One tenth of one percent of the total population of Hispanic-American HSDGs experience an academic acceleration. This makes it impractical to draw meaningful information from Table 3-9.

10. Academic Interruptions

Some students at Navy schools experience academic interruptions (placement into a hold status causing an inability to attend class). In this way, an individual is provided the opportunity to remain at the school and resume instruction at a later date. Frequency analysis of academic interruptions (after start of class) for the population are presented in Table 3-10.

TABLE 3-10

PERCENT OF HISPANIC-AMERICAN NAVY MEN IN THE SAMPLE POPULATION WHO HAVE EXPERIENCED ACADEMIC INTERRUPTION(S) AFTER CLASS CONVENED, BY EDUCATIONAL LEVEL AND HISPANIC SUBGROUP

HISPANIC SUBGROUP	HSDG	NHSDG	CERT
MEXICAN-AMERICAN	6.00	6.60	9.40
PUERTO RICAN-AMERICAN	8.50	9.40	10.40
CUBAN-AMERICAN	4.50	7.60	2.60
SPANISH-AMERICAN	5.00	10.40	10.30
SOUTH/CENTRAL HISPANIC-AMERICAN	4.30	7.10	7.10
TOTAL SAMPLE POPULATION	6.10	8.70	9.80

Within each Hispanic-American subgroup (except for Cuban-Americans), HSDGs receive relatively fewer academic interruptions than either NHDGs or CERTs. Also, the proportions of academic interruptions differ between Hispanic-American subgroups.

Chi-square analysis showed the Spanish-American subgroup is the only one that demonstrated a statistically

significant relationship (above a 95 percent level of confidence) between the occurrence of a academic interruptions and the educational background of the population. Further research into the exact nature of this relationship is beyond the scope of this study.

C. SUMMARY

The results of the preliminary analysis are interesting --as much for what they show as for what they do not. For example, persons in each of the three education groups have similarly high rates of training completion; yet the rates for persons who do not possess a diploma tend to be slightly above those of persons who do possess a diploma. Nongraduates and certificate holders tend to start training at lower paygrades--and proportionately more receive training in technical occupations. At the same time, nongraduates and certificate holders tend to experience slightly more training setbacks for academic or non-academic causes; and they tend to have slightly higher rates of training interruptions.

These findings result in more questions than answers concerning the relationship between education level and training performance. The influence of aptitude is assumed to be strong here--since assignment to training is based primarily on aptitude test scores, and nongraduates and certificate holders are required to have higher scores to

qualify for enlistment. (In fact, as shown in Table 3-6, the AFQT mean percentile scores of NHSDGs and CERTs are above those of HSDGs and well above the mean for the general population of youth.) Higher test scores, in turn, are typically required for assignment to training in technical occupations. This may explain why so many more NHSDGs and CERTs (about 40 percent of each group) than HSDGs (about 31 percent) are assigned to technical schools. And the assignment patterns to technical schools may influence the performance differences found between persons who possess a diploma and those who do not; that is, since training in technical occupations is usually more demanding than training in nontechnical areas, the proportions of persons experiencing setbacks or interruptions may be somewhat higher in technical schools. Consequently, the slightly higher rates of academic or non-academic setbacks and interruptions for NHSDGs and CERTs could be linked to larger differences in the aptitude levels of persons in these groups and their relatively more difficult training requirements. In any case, it is important to note again that the Navy school completion rates for nongraduates and holders of equivalency certificates are slightly above those for graduates.

Further research should be undertaken to explore these differences and the possible influences of factors related to selection and classification criteria. In addition, the

differences and performance trends for persons in other racial/ethnic groups should be explored to see if the patterns related to educational level are similar to those found for Hispanic-Americans.

IV. CONCLUSIONS AND RECOMMENDATIONS

The purpose of this thesis was to create a structure for analyzing the training school performance of Hispanic-American enlistees in the Navy. This was accomplished by developing a computerized data base, utilizing an extract of the Navy Enlisted Classification Tracking file (NECTRACK) and the Enlisted Training Tracking file (TRAINTRACK), supplied by the Navy Personnel Research and Development Center (NPRDC). In addition, a review of literature was undertaken to provide a summary of available information on factors that may influence the performance of Hispanic-Americans in the Navy. Finally, the data base was explored by conducting a preliminary analysis of the relationship between selected training outcomes and the educational level of Hispanic sailors within five subgroups (Mexican-Americans, Puerto Rican-Americans, Cuban-Americans, Central and South Hispanic-Americans, and Spanish-Americans).

A. CONCLUSIONS

The following specific conclusions are drawn from the results of the study:

1. Both the NECTRACK and TRAINTRACK data sets are usable, without further transformation, with the Statistical Analysis System (SAS) software on the Naval Postgraduate School IBM 3033 mainframe computer.

2. Either the NECTRACK or TRAINTRACK data sets may be merged with other data sets (e.g., data from the Defense Manpower Data Center) using a common variable, such as social security number.

3. As a consequence of the limitations inherent in a small Conversational Monitor System (CMS) environment, both data sets contain significant amounts of redundant information that must be considered during the course of future analytical efforts. This, however, poses no real problem as long as the analyst is aware of this redundancy.

4. Updated versions of either the NECTRACK or TRAINTRACK data sets received from NPRDC may be transformed for use on the NPS IBM 3033 mainframe computer by employing the exact programs developed for this study. Variable names may be changed through minor alterations to these programs.

5. The preliminary analysis demonstrates the potential utility of the new data base. In addition, several interesting results emerged from the analysis:

   a. Differences exist in the educational level of Navy male enlistees who comprise the various Hispanic-American subgroups. For example, 54.2 percent of the South/Central Hispanic-American subgroup are high school diploma graduates (HSDGs), compared with just 35.9 percent of the Spanish-American subgroup.

   b. Greater than four out of five Hispanic sailors who start a Navy training school eventually complete it. Completion rates are similarly high for persons within all three levels of education; though completion rates of non-high school diploma graduates (NHSDGs) and holders of equivalency certificates (CERTs) tend to be slightly higher than those of HSDGs, for several of the Hispanic subgroups.

   c. Results indicate that proportionately more CERTs and NHSDGs receive their first NEC at junior paygrades, compared with HSDGs. Specifically, 64.7 percent of the total number of HSDGs are in pay grades E-2 or below compared with 89.5 percent of NHSDGs and 93.9 percent of CERTs.

d. Proportionately more NHSDGs and CERTs than HSDGs across each Hispanic-American subgroup (with a minor exception) are assigned to a technical rating. This may reflect the fact that nongraduates and certificate holders are required to have higher aptitude test scores for enlistment. Since three out of five sailors in the training data base are NHSDGs or CERTs, this group may represent an important resource for the Navy now and in the future.

e. Within each Hispanic-American subgroup, a slightly smaller proportion of HSDGs than either NHSDGs or CERTs experience an academic setback in training. Differences are statistically significant for the total sample population.

f. Within each Hispanic-American subgroup (except Cuban-Americans), a slightly smaller proportion of HSDGs than either NHSDGs or CERTs experience a non-academic setback in training. Differences, however, are generally not statistically significant.

g. Within each Hispanic-American subgroup (except Cuban-Americans), a slightly smaller portion of HSDGs than either NHSDGs or CERTs experience an academic interruption. In most cases, differences are statistically significant.

B. RECOMMENDATIONS

The following recommendations are based upon the results of this thesis, including the preliminary analyses conducted to verify the NECTRACK and TRAINTRACK data sets:

1. Additional research should be conducted to compare the training school performance of Hispanic-Americans with that of major racial/ethnic subgroups of the national population. This would substantiate differences or similarities between Hispanic-Americans and others.

2. Hispanic-Americans within the Navy should be studied as individual and independent subgroups that behave differently--and not as a homogeneous population. Broad generalizations concerning "Hispanics" tend to conceal the very substantial differences that exist between Hispanic-American subgroups.

3. Future research should examine the relationship between ASVAB scores of Hispanic-American men in the Navy and educational level (HSDGs, NHSDGs and CERTs) within the context of their relationship to Navy training performance.

4. Literature concerning Hispanic-Americans should be updated using 1990 census information.

5. Further research should be conducted to look at the importance of the high school diploma as an enlistment standard for Hispanic-Americans.

6. Updates of both the NECTRACK and TRAINTRACK data sets should be requested by NPS researchers on a periodic basis from NPRDC to maintain the most current information available for study.

These recommendations only touch upon a few possibilities for research using the Hispanic-American extract of the NECTRACK and TRAINTRACK data sets. The potential for future analyses of these data span numerous topics, such as: training cost analysis, the effects of training delays, reasons for military discharge, attrition, and the like. This thesis attempts to provide a foundation and starting point for conducting further research on Hispanic-Americans in the Navy. The authors strongly encourage use of the newly-created data base as a resource for understanding differences and similarities between Hispanic-Americans and the mainstream population. With this understanding, manpower policy planners can more effectively tap into an increasingly important human resource for tomorrow's Navy.

BOOT CAMP (BOOT) TRAINTRACK 1 (38-38)
A 1-position numeric field indicating where the individual went for recruit training. For those accessed prior to FY79 the field is equal zero.

RECOMMENDATION LEVEL (RLVL) TRAINTRACK 1 (49-49)
A 1-position alphanumeric field designating the Navy's ranking of an individual for school instruction.

SCHOOL/GENDET RECOMMENDATION;PREFERENCE (PRE1) (50-51)
A 2-position alphanumeric field indicating the individual's school or GENDET preference. An individual can have five preferences, which are ranked order from 1 to 5.

SCHOOL/GENDET RECOMMENDATION;PREFERENCE (PRE2) (52-53)
Same as PRE1.

SCHOOL/GENDET RECOMMENDATION;PREFERENCE (PRE3) (54-55)
Same as PRE1.

SCHOOL/GENDET RECOMMENDATION;PREFERENCE (PRE4) (56-57)
Same as PRE1.

SCHOOL/GENDET RECOMMENDATION;PREFERENCE (PRE5) (58-59)
Same as PRE1.

SPIRIT CARD (CARD) TRAINTRACK 1 (60-60)
A 1-position numeric field indicating a school or Gendet assignment following SPIRIT processing.

TYPE AVAIL (TAVL) TRAINTRACK 1 (61-61)
A 1-position numeric field indicating whether the individual is unassigned, school assigned, GENDET assigned to LANT, GENDET assigned to PAC, or GENDET assigned to CONUS or BUPERS.

APPRENTICESHIP RATE (ARAT) TRAINTRACK 1 (62-63)
A 2-position alphanumeric field indicating what apprenticeship category an individual is in.

SCHOOL QUOTA (QUOT) TRAINTRACK 1 (64-65)
A 2-position alphanumeric field indicating what school the individual will be attending.

QUOTA TYPE (QTYP) TRAINTRACK 1 (66-67)
A 1-position alphanumeric field indicating whether the individual is in the reserve, advanced electronics or nuclear field.

APPENDIX A

TRAINTRACK DATA SET

TRAINTRACK 1 AND 2 DATA ELEMENTS:

SOCIAL SECURITY NUMBER (SSN) TRAINTRACK 1 (1-9)
A 9-position number that uniquely identifies the student.

NAME (NAME) TRAINTRACK 1 (10-21)
A 12-position alphanumeric field indicating the last name, first name, and middle initial of the student.

AS-OF DATE FISCAL YEAR (FY) TRAINTRACK 1 (22-23)
TRAINTRACK is updated annually at the end of the fiscal year. This date marks the fiscal year an individual was found undergoing training.

SPIRIT TYPE (TYPE) TRAINTRACK 1 (24-24)
A 1-position numeric field indicating whether the enlisted person being processed by SPIRIT for school has come from a RTC.

SPIRIT STATUS (STAT) TRAINTRACK 1 (25-25)
A 1-position numeric field indicating the status or disposition of the individual after SPIRIT processing, i.e., whether or not a school assignment has been made.

SPIRIT CATEGORY (CAT) TRAINTRACK 1 (26-31)
A 6-position alphanumeric field indicating which AVAIL or FLEET category the person being processed is in. Note CAT and TYPE can be the same.

SPIRIT MONTHS (OBLG) TRAINTRACK 1 (32-33)
A 4-position alphanumeric field indicating the total number of months of obligated service the individual has. This includes extensions agreed upon for selection eligibility.

SPIRIT ENLISTMENT RATE (ERAT) TRAINTRACK 1 (34-37)
A 4-position alphanumeric field indicating the individual's enlistment rate. The first two positions contain the rate code and the last two positions are blank or contain the Occupational Specialty Code.

COURSE LENGTH (LONG) TRAINTRACK 1 (67-68)
A 2-position numeric field representing the course length in weeks.

TYPE AVAIL NEC (ANEC) TRAINTRACK 1 (69-72)
A 4-position alphanumeric field for the Navy Enlisted Classification Code.

SCHOOL LOCATION CODE (SLOC) TRAINTRACK 1 (73-73)
A 1-position alphanumeric code indicating the school's location.

INTERMEDIATE CDP (ICDP) TRAINTRACK 1 (74-77)
A 4-position alphanumeric code representing an intermediate school.

INTERMEDIATE UIC (IUIC) TRAINTRACK 1 (78-82)
A 5-position alphanumeric field for an intermediate Unit Identification Code. Check UIC Manual for the particular location in question.

ULTIMATE UIC (UUIC) TRAINTRACK 1 (83-87)
A 5-position alphanumeric position representing the final destination for the SPIRIT assignment.

NUMBER OF TRAINING EPISODES (EPIC) TRAINTRACK 1 (88-90)
A 3-position numeric field that denotes the number of training episodes which follow. TRAINTRACK is written in variable length format. This field gives the number of 106-character record length fields that follow. These are arranged in chronological order from the first to the last.

COURSE DATA PROCESSING CODE (CDP) TRAINTRACK 2 (1-4)
A 4-position alphanumeric code which uniquely identifies a course at a particular training activity. The CDP is different from the Course Identifying Number (CIN) used in the Catalog of Navy Training Courses (CANTRAC). The CIN identifies a course of instruction which may be conducted at multiple locations. The CDP is assigned by the NITRAS Management Office.

RATE CODE (RATE) TRAINTRACK 2 (5-8)
A 4-position numeric code which indicates the rating (occupation) or apprenticeship.

PAYGRADE (PAY) TRAINTRACK 2 (9-9)
A 1-position alphanumeric field for the individual's rank.

STUDENT ORIGIN CODE (SOC) TRAINTRACK 2 (10-10)
A single alphanumeric character identifying the student's service category, i.e., USN officer, USMC enlisted, DOD civilian, etc.

TRAINING INDICATOR CODE (TIC) TRAINTRACK 2 (11-11)
This single alphanumeric character is used to identify personnel who earn an NEC as a result of graduation from a course.

NAVY ENLISTED CLASSIFICATION (CODE) TRAINTRACK 2 (12-15)
A 4-position alphanumeric code which reflects special knowledge and skills that identify personnel and requirements. The code supplements the enlisted rating structure in identifying personnel on active or inactive duty and billets in manpower authorization.

TYPE COURSE (TYPE) TRAINTRACK 2 (16-17)
A 2-position alphanumeric code which indicates the kinds of knowledge, skills and techniques the course is designed to provide.

METHOD OF INSTRUCTION (METH) TRAINTRACK 2 (18-18)
A 1-position alphanumeric designating whether the course is self-paced, computer managed, group-paced or a combination of individualized instruction methods.

QUOTA STATUS CODE (QSC) TRAINTRACK 2 (19-19)
For USN students this single digit alphanumeric code indicates the student's duty status, e.g., Duty Under Instruction (DUINS), Temporary Additional Duty Under Instruction (TEMADDINS), Temporary Duty Under Instruction (TEMDUINS), SIT-IN, etc.

ENROLLMENT DATE (EDAT) TRAINTRACK 2 (20-24)
A 5-digit number indicating the enrollment date of a class. This is a Julian date. The first two digits indicate the calendar year, and the next three, the day of the year.

CLASS CONVENE DATE (CDAT) TRAINTRACK 2 (25-29)
A 5-digit number indicating the convening date of a class. This is a Julian date. The first two digits indicate the calendar year, and the last three, the day of the year.

FIRST E2 DATE (SDAT) TRAINTRACK 2 (30-34)
A 5-digit number indicating the date the student actually begins class. This is a Julian date.

FIRST GRAD DATE (GDAT) TRAINTRACK 2 (35-39)
A 5-digit number indicating the expected graduation date for a class. This is a Julian date. All students in a class must be assigned the same class graduation date although a given student may graduate earlier or later than the scheduled date.

ACTUAL GRAD DATE (LDAT) TRAINTRACK 2 (40-44)
A 5-digit number indicating the actual graduation date of the individual. This is a Julian date.

E. :PTION GRAD DATE (XDAT) TRAINTRACK 2 (45-49)
A 5-digit number which indicates the date a student will graduate when it differs from the established class graduation date. This is a Julian date.

ACTUAL LOSS DATE (ALDA) TRAINTRACK 2 (50-54)
A 5-digit number indicating the Julian date a student completes or attrites from a class.

TERMINATION DATE (TDAT) TRAINTRACK 2 (55-59)
A 5-digit number indicating the Julian date a student leaves the NITRAS system. Usually the date corresponding to a transfer or reassignment.

PAST PARENT UIC (PPIC) TRAINTRACK 2 (60-64)
The 5-character alphanumeric code used to identify the student's last organizational unit. Numeric codes are sequentially assigned with 00001 and ending with 99999.

STUDENT UIC (SUIC) TRAINTRACK 2 (65-69)
The 5-character alphanumeric code used to identify the student's classroom organizational unit. The UIC may not be a formal classroom, but the unit where student will get on-the-job training. Codes are sequentially assigned beginning with 00001 and ending with 9999.

PRESENT PARENT UIC (PPIC) TRAINTRACK 2 (70-74)
The 5-character alphanumeric code used to identify the students's current organizational unit. Codes are sequentially assigned beginning with 00001 and ending with 9999.

NUMBER OF ACADEMIC SETBACKS (ASET) TRAINTRACK 2 (75-76)
A 2-position number indicating the total number of academic setbacks the student incurred in the particular CDP. This number is the sum of the number of NITRAS K-- transaction codes.

NUMBER NONACADEMIC SETBACKS (NSET) TRAINTRACK 2 (77-78)
The 2-character number indicating the total number of nonacademic setbacks the student incurred in the particular CDP. This number is the sum of the number of NITRAS L--transaction codes.

NUMBER OF ACCELERATIONS (NACL) TRAINTRACK 2 (79-80)
The 2-character number indicating the total number of times the student was reassigned to an earlier class in the same CDP. This number is the sum of all NITRAS M transaction codes.

NUMBER OF INTERRUPTIONS (NINT) TRAINTRACK 2 (81-82)
The 2-character number indicating the total number of times the student was placed in a hold status after the convening date when his/her instruction has been interrupted and is unable to attend class. This number is the sum of NITRAS transaction codes: CD4, CE4, C41, C42, C43, C44, C45, C46, and C49.

DAYS AWAITING INSTRUCTION (WAIT) TRAINTRACK 2 (83-85)
This 3-character number indicates the total number of days the student was awaiting instruction in the particular CDP. Days awaiting instruction occur if the student is in a hold status awaiting enrollment, or having enrolled, is awaiting the convene date of his/her scheduled CDP.

NUMBER OF INTERRUPTED DAYS (DAY) TRAINTRACK 2 (86-88)
This 3-character number indicates the total number of days the student was unable to attend the particular CDP. This is the sum of the number of days between student transaction code for interruption of instruction (see Number of Interruptions) and E3, A--, K--, L--, M, and N--codes.

NUMBER OF INSTRUCTION DAYS (INST) TRAINTRACK 2 (89-91)
This 3-character number indicates the total number of days the student was actually undergoing instruction in that particular CDP.

NO. DAYS AWAITING TRANSFER (TRAN) TRAINTRACK 2 (92-94)
This 3-character number indicates the total number of days the student was awaiting transfer. discharge, or reclassification following successful or unsuccessful completion of the particular CDP.

TOTAL TAXPAYER COST (TOTC) TRAINTRACK 2 (95-100)
This 6-character number is the total taxpayer cost per graduate for the particular CDP. This cost is calculated by CNET for each fiscal year. Some CDPs so not have cost figures.

TOTAL VARIABLE COST (VCOS) TRAINTRACK 2 (101-106)
This 6-character number is the total taxpayer variable cost per graduate for the particular CDP. Each fiscal year CNET calculates this cost. Some CDPs do not have these cost figures.

TOTAL FIXED COST (FCOS) TRAINTRACK 2 (107-112)
This 6-character number is the total taxpayer fixed cost per graduate for the particular CDP. Each fiscal year CNET calculates this cost. Some CDPs do not have these cost figures.

INCOMPLETE INDICATOR (IIND) TRAINTRACK 2 (113-113)
A 1-character number designating whether or not NITRAS processing is complete. Usually the record is incomplete because the student is in deserter status.

STUDENT ACTION CODE (SAC) TRAINTRACK 2 (114-116)
A 3-character code which indicates the final CDP action which occurred for the student prior to transfer or discharge. The first character identifies the general type of action which occurred and the remaining two characters identify the specific circumstances.

APPENDIX B

NECTRACK DATA SET

NECTRACK DATA ELEMENTS:

SOCIAL SECURITY NUMBER (SSN) NECTRACK 1 (1-9)
A 9- position number that uniquely identifies the student.

SEX NECTRACK 1 (10-10)
Gender, male or female.

RACE NECTRACK 1 (11-11)
Group of persons related by common descent, blood, or heredity.

ETHNIC NECTRACK 1 (12-12)

1 Persons of Spanish extraction not delineated as Mexican, Puerto Rican, Cuban, Latin American

4 Persons of Puerto Rican descent.

6 Persons of Mexican origin, their descendants and "Chicanos."

9 Persons of Cuban descent.

S Persons of Central and South American and their descendants who have Spanish heritage.

BIRTH NECTRACK 1 (13-16)
Birth year and month, i.e., YYMM.

AFQT NECTRACK 1 (17-18)
Armed Forces Qualification Test scores.

ED-YRS NECTRACK 1 (19-20)
Years of education attained.

ED-CERT NECTRACK 1 (21-21)
Educational certificate earned, i.e., high school diploma, GED, B.S., etc.

HOME-REC NECTRACK 1 (22-23)
A 2-position code indicating home of record, i.e., NJ, NY, PR, RP, CO, etc.

TEST-ID NECTRACK 1 (24-25)
ASVAB test identification number.

ASVAB NECTRACK 1 (26-51)
Armed Services Vocational Aptitude Battery.

LOSS-DATE NECTRACK 1 (52-55)
Date separated from military service, YYMM.

LOSS-CODE-NAVY NECTRACK 1 (56-58)
A 3-position numeric code stating the type of the discharge from the Navy.

LOSS-CODE-DOD NECTRACK 1 (59-61)
A 3-position DOD character code stating the type of discharge.

NEC-SEGMENT-CTR NECTRACK 1 (62-63)
A 2-position counter that increments with each additional Navy Enlisted Classification code attained.

FY-YEAR NECTRACK 2 (1-2)
Which year NECTRACK was updated, i.e., YY.

FY-QTR NECTRACK 2 (3-3)
Which quarter NECTRACK was updated, i.e., 1, 2, 3, or 4.

RATE-CODE NECTRACK 2 (4-7)
A 4-position numeric code that indicates the rating or apprenticeship.

PAY-GRADE NECTRACK 2 (8-8)
A 1-position alphanumeric field for the individual's rank.

PNEC NECTRACK 2 (9-12)
A 4-position alphanumeric code which reflects primary special knowledge and skills that identify personnel and requirements.

SNEC NECTRACK 2 (13-16)
A 4-position alphanumeric code which reflects secondary special knowledge and skills that identify personnel and requirements.

ADSD NECTRACK 2 (17-20)
Date the individual entered Active Duty, YYMM.

PEBD NECTRACK 2 (21-24)
Pay entry base date, YYMM.

CED NECTRACK 2 (25-28)
Current enlistment date (reenlistment), YYMM.

CADD NECTRACK 2 (29-32)
Current active duty date (reservists), YYMM.

EAOS NECTRACK 2 (33-36)
End of active obligated service, YYMM.

ENL-TERM NECTRACK 2 (37-37)
Number of years of current enlistment/reenlistment contract.

ENL-TYPE NECTRACK 2 (38-39)
Indicates type transaction by which member was gained to Active Duty Enlisted Strength, i.e., ENL/REEN (with/ without bonus), RECALL, etc.

TERM-STATUS NECTRACK 2 (40-40)
Number of reenlistments and/or operative extensions of enlistment which count as a reenlistment (period of 24 months or more).

ENL-NUMBER NECTRACK 2 (41-41)
Indicates number of enlistments in current branch and class of service.

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