1986

An Investigation of School Climate, Context, and Composition Variables on the Achievement of Hispanic High School Students of Limited-English Ability

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AN INVESTIGATION OF SCHOOL CLIMATE, CONTEXT, AND COMPOSITION VARIABLES ON THE ACHIEVEMENT OF HISPANIC HIGH SCHOOL STUDENTS OF LIMITED-ENGLISH ABILITY

By

Pedro L. Martinez-Addarich

A Dissertation Submitted to the Faculty of the Graduate School of Loyola University of Chicago in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

November 1986
ACKNOWLEDGEMENTS

I am grateful to all the individuals who have cooperated in the development and completion of this project. First, I would like to thank the members of my committee, especially Dr. Stephen Miller, for the time and professional guidance they dedicated to this work.

I would also like to thank the other faculty members from Loyola University, whose knowledge and dedication made my studies at Loyola professionally and intellectually rewarding. I am most grateful to my wife, Mayra, for her support and patience during the long-period of time I was dedicated to this endeavor.

Finally, I would like to thank my parents, Jaime and Raquel, whose life of sacrifice and work, have made my accomplishments much easier. I would like to dedicate this work, to my deceased father, Jaime, who always encouraged his children to excel in life. To you, father, my most humble efforts.
The writer, Pedro L. Martinez-Addarich, is the son of the late Jaime Martinez-Blanco and Raquel Addarich vda. de Martinez. He was born on October 8, 1951, in Guayama, Puerto Rico. He is married to Mayra Alvarez-Valdez and has no children.

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CHAPTER I

INTRODUCTION

During the last two decades highly publicized research on equal educational opportunity has emphasized that one of the most influential variables affecting student achievement is socioeconomic status (SES). Studies of this kind have examined those student input characteristics which are primarily derived from the students family backgrounds. These studies have tended to focus on SES, minimizing, and often overlooking, the impact that school and classrooms can have on the achievement of low SES students.

While a large body of literature exists in the field of sociology of education supporting a restrictive view of the school impact climate in favor of SES, litigation initiated by linguistic and racial minorities in their quest for equal educational opportunity has led social scientists to seek alternate explanations for student achievement. It has been hypothesized by Brookover, 1979, Coleman, 1981, and Wilson, 1967, that students of low SES and ethnic minorities would achieve higher, given the proper institutional environment. With this impetus, research began to focus on variables that explained school differences in light of the diversity of school environments.

In the past, analysis of school achievement was based on the Blau and Duncan (1967) model in which achievement was thought to be predicted by the socioeconomic characteristics of the family. The
Factors most often studied under this general classification were occupational prestige, income, and parental education. In recent studies, following the same tradition, Nielsen and Peng (1981) found that when similar independent variables were used, these could only explain 10-15% of the variance in test scores. Since other independent variables, such as teacher/pupil ratio, organization of schools and students perceptions among others, might possibly account for the unexplained variance, the present study was designed to examine the interrelationship of some of these variables to the achievement of Hispanic high school students.

In the past, univariate research has not resulted in establishing significant results. Randaura and Fu (1973) pointed out that the "locus of interest in educational measurement" has shifted from measures of the individual to measures of the environment. For this reason, the present investigation focused on aggregate characteristics found in school environments. These aggregate measures, although distinct from each other as variables, are assumed to have something in common, that is, they all affect the same independent variable. At the same time, it is also assumed that all contribute to the variance of the dependent variables as measured by the raw scores in vocabulary and mathematics but in different degrees. Given the opportunity to examine school-process variables in addition to those that represent the background of high school students, it is possible to assess the relative value that each of these categorical variables has on different measures of achievement.
Most large scale research investigating the relationship between school characteristics and student achievement has failed to discover school characteristics associated with an increase in student achievement. Thus, it has been concluded by many researchers that schools do not make a difference (Coleman, 1966; Duncan, 1972; Marjoribanks, 1977). However, other researchers (Edmond & Frederiksen, 1978; Brookover & Lezotte, 1977) have isolated within-school variables which have contributed to differential achievement of low SES students.

Following this trend, fifteen years after his well known study of Equality of Educational Educational Opportunity, (EEO, 1966), Coleman undertook an important longitudinal study, entitled "High School and Beyond" (Coleman, et al., 1981). Unlike the previous study, High School and Beyond (HSB) posited that family background is not a major determinant of educational achievement. Since the release of the report, derived from the HSB database entitled "Public & Private Schools" (Coleman et al., 1981), there have emerged indications that certain educational practices occur both in the private and public schools which produce better cognitive outcomes; and this being the case after controlling for family background factors.

When confronted with a similar question concerning what factors influence the educational attainment for Hispanics, past research has traditionally examined background factors such as ethnicity or minority group status. In light of recent research, much credence
cannot be attributed to studies that cannot explain conditions that cause groups and/or individuals to educationally achieve more than others.

The number of studies designed to address this question is best described as inadequate as far as having a representative sample of the Hispanic population. Despite these shortcomings, there is considerable doubt that Hispanics, at least a large percentage of them, benefit from the educational system in comparison with other non-minorities. Further, the Hispanic's failure in obtaining educational benefits can in part be explained by the inability of this group to adopt the socio-cultural values and language of mainstream America. Another view shared by Bowles & Gintis (1976) and described as the "theory of educational exclusiveness", speculates that groups (minorities in general) perpetuate and sustain inherently deficient, or a least dysfunctional characteristics, which cause lack of success in school and society.

Going beyond the above explanation, the present investigation is designed to explore an alternative answer. As proposed by Payan et al. (1982), there are two broad categories that affect Hispanic educational attainment. One category, "personal factors", includes characteristics such as aspirations, self-concept, and social-emotional adjustments. The second, "institutional factors", includes characteristics of school environments, curricula, ethnic composition, faculty attitudes, etc. The characteristics related to "institutional factors" are especially relevant to the objectives of
the present study.

First, there is a need to understand how "school factors" affect Hispanic students achievement. Since the HSB data is rich in these categories, the investigator wishes to pursue this direction. The rationale for this is based on real educational issues. From an educational equity perspective, the issue that stands out is: how can Hispanics enhance their academic skills and increase their potentiality as college students? The answer to this question requires that we understand how Hispanic achievement is determined by high school institutional factors that in turn affect the chances of college admission.

Theoretically, the investigator assumes that the true measure of whether school characteristics have an effect on achievement would have to be based on the assumption that the schools under examination indeed differ in their school factors. Secondly, that students would have been randomly selected and that they would have participated in schools with different experimental treatments. Ideally, these students would be compared on the basis of the different treatments received. Since this type of experiment in reality is not possible, an ex post-facto study with the available data from HSB was used to arrive at possible predictions based on the premise that the schools attended differed in their structures and that possible differences in students outcomes would be observed. Secondary to this, the existing data bank provides an opportunity to carefully examine a variety of climates within a natural school context. This allows the
researcher to look at the educational process as it actually exists in our society and provides the opportunity to recommend either the maintenance or modification of these educational practices.

Another advantage of the ex post-facto study is the avoidance of bias or preference for educational practices selected a priori by the researcher. Thus a possible bias has been eliminated. In addition, since this study is of a non-experimental nature, multiple correlations are used in order to show relationships between the dependent and independent variables selected. Considering the present state of research in the sociology of education and the increase of studies on "school effects", the investigator has selected variables (competency exams, student/teacher conflict, specialization of school, etc.) viewed as inputs in the overall schooling process and clustered them under the following three categories: climate (ability grouping, absenteeism, parents lack of interest in students progress), context (teacher and other personnel student ratio, years of experience, highest degree obtained) and compositional attributes (percentages of disadvantaged students, graduating class in college, and college plans). In principle, potential input variables have been included based on certain theoretical propositions which will be discussed in the second chapter.

HISPANICS: A PROFILE

The term Hispanic, as used in this study, refers to any individual who has been born in countries designated as belonging to
North America (Mexico), Central America, South America, including the Spanish-speaking islands of the Caribbean and the Iberian Peninsula; and/or when the subject categorizes him/herself as belonging to the above countries by reason of language usage or other objective cultural criteria; and/or subjectively identifies him/herself under the following categories:

(1) Mexican, Mexican-American, Chicano; (2) Cuban, Cubano; (3) Puerto Rican, Puertorriqueño or Boricua; and (4) other Latin American, Latino, Hispanic or Spanish labels.

According to the Bureau of the Census (U.S. Department of Commerce, May 1981), as of March 1980, there were about 13.2 million persons in the United States who were of Spanish origin excluding Hispanics residing in U.S. territories such as Puerto Rico, Virgin Islands, etc., and also excluding mainland undocumented workers. Among the principal Hispanic subgroups in the United States, Mexicans comprised the largest group (7.9 million); followed by those classified as Central or South Americans and Spanish (2.7 million); Puerto Ricans (1.8 million); and Cubans (831,000).

As a whole, the U.S. Hispanic population differs from the general population in socio-economic background, age, language background and educational attainment. The median annual income for Hispanic families was $12,566 as compared to $17,912 for the non-Hispanic families. The Hispanic population is also younger with a median age of 22.1 versus 30.7 for non-Hispanic (U.S. Department of Commerce, 1981). As reported in the Survey of Income and
Education, over 80 percent of U.S. Hispanics live in Spanish-speaking households and over 33 percent reported speaking Spanish (NCES, 1978). The most current report on educational characteristics pertaining Hispanics, shows that 55.5 percent of Hispanics ages 18 to 34 years had completed high school as compared to 83.9 percent of white persons of the same age range (CEH, 1980, 138-139). There is also considerable evidence that drop out rates are substantially greater for Hispanics than for the rest of the population. Estimates based on data from the Survey of Income and Education of 1976 indicate that among Hispanic drop outs, 60 percent had left school before grade 10, while a large percentage of those remaining never completed grade 12. The writer wishes to acknowledge that the Hispanic students considered in this study, belonging to the sophomore and senior cohorts, are perhaps part of a "special group" of Hispanic students that have been able to survive in the school system. Therefore, the writer cautions the reader not to assume that this group represents all "Hispanic students" and that an accurate profile of these students might not be possible. Further, the HSB data shows that unemployment among Hispanics of lower income is greater than for those Hispanics of higher income families. In other words, Hispanics in contrast to other ethnic youth seem to have an employment ratio that increases with family income. Therefore, among Hispanic youth, the most destitute and least educated are the least employed. This fact is significant in light of this study in two ways: first, the high school students of this study perhaps represent
the better-able as well as the group that is most employable. This is also of significance since lack of work experience will have more serious consequences for those students who have failed to obtain a diploma. In addition, it is evident that the Hispanic youth that is less educated and employed will pose greater problems for society as a whole. This study, however, will not attempt to provide possible sociological solutions for these issues.

Additional data from the HSB study, in a report entitled Youth Employment During High School (NCES, 1981), indicates that overall, Hispanic males are most likely to work full-time during their high school years and also have the highest mean number hours of work. It is evident that although "schooling" is designated as the primary adolescent activity in American society, work and secondary education are not mutually exclusive. The time spent at work appears to be second only to the time spent in the classroom. As reported by the sophomore and senior cohorts, time spent in activities related to school such as reading, homework, etc., is minimal. For Hispanic working-youth, one can only conclude that since, on the average, they spend more hours at work, that time given to school matters is minimal.

Although there has been a significant increase of Hispanic college bound students, there are indications that the rate slowed down during the latter part of the 1970's following an increase trend in the early years of the same decade. The college enrollment statistics cited from the Bureau of the Census Report (CEH, 1980)
show that for fall of 1978, 42 percent of all Hispanic part-time and full-time college students were concentrated in two year colleges, while only 23 percent of the white non-Hispanic part-time and full-time college students attended these same institutions. It has been suggested by Duran (1983) that the significant increase of college-bound students enrollment for Hispanics may be occurring most significantly in terms of increased two-year college attendance.

The sample selected for inclusion in the present study represents a segment of the Hispanic school population designated as "limited-English proficient", also known as LEP students. It is widely believed, although not statistically substantiated, that the inability to speak English well is related to low socio-economic attainment vis-a-vis school achievement among Spanish language groups. In the 1976 Survey of Income and Education (SIE), which studied the language characteristics of Spanish speakers from both sexes, age 25-64, it was found that Hispanics were heterogenous in the use of the mother-tongue, years of residence in the United States and the degree of assimilation into American society. Similar differences were found in the Nielsen-Fernandez (1981) studies among high school students of Hispanic descent. In general the major findings are: 1) Hispanic cohorts in the 10th and 12th grade vary markedly in the use of the Spanish language; 2) the proportion of students whose fathers have a college degree and those that have not completed high school also varies markedly; 3) there are differences with respect to income. All Hispanic subgroups, except for Puerto
Ricans, do better than Blacks in this respect; 4) Hispanics differ greatly with respect to the length of residence in the United States. Additional related findings are cited in the NCES (1981) report, Hispanic Students in American High Schools: Background Characteristics and Achievement.

In order to best understand what factors underly Hispanic opportunities to achieve in high school, one should identify the characteristics of the U.S. Hispanic population as well as their educational experience in mainland schools. The information included in this profile is not meant to explain what the writer initially purported in the introduction. The data reviewed is meant to show that Hispanics, and more so Hispanic youth, do not participate in the same opportunities as other segments of the population with regard to employment, income and other experiences often associated with school achievement. Although, the investigator has not specifically associated these factors solely with school achievement, there are other remaining factors that will be considered in subsequent chapters. Given that which is reported above, it appears that much needs to be understood about the "school factors" associated with optimizing achievement among Hispanic high school students if we intend to find those that significantly influence achievement.

THEORETICAL FRAMEWORK

In early works by Weber and Durkheim (1978), schools were described as institutions by which a society recreated itself. Schools were also exemplified as a "bureaucratic model" that taught
correct behaviors so that individuals could move in and out of
classes in a stratified system. These early descriptions of schools
provided the impetus for sociological analysis where schools were
examined as social organisms. The school classroom was also examined
as a social system by Parsons (1959). Bossert (1979) also studied
classrooms as social systems through the analysis of teacher's role,
personality and effectiveness and patterns of interaction among
students and between teachers and students. Generalizing from
classrooms to schools, it is possible to view schools in terms of a
total combination of individuals, in this case, students.

The combination or the total sum of of a set of values and/or
opinions by a group, could then be classified as the social context
or climate of the school. In a similar way, Getzels (1969) views the
school as a social system where the nature of the educational roles
and the character of the teacher-pupil interactions are integrally
related to other aspects of the community. It is expected that the
school, as a social agent, will prepare children to become
enculturated. Whether this will take place or not depends to a great
extent on the attitudes and behavior patterns acquired from the
family rather than those encountered at school. In this sense, both
the school and the classroom play a similar role within the social
system. Getzels (1969:464) summarizes this relationship as:

At the most general level, these interrelated
Systems may be seen as embeded in a culture with
A certain ethos defined by the constituent patterns
Of values. The quality of instructional roles and
The individual personalities in the school system,
As in all other systems, is related to the ethos of
the particular culture, and the specific role expectations and personal dispositions to its values. On the one hand, the expectations of the values (or subvalues) of the culture (or subculture) in which the child is reared.

The growing interest for effective schools, as exemplified by the literature in discovering the determinants of student performance is often explained by those variables clustered under the terms context and/or climate. These variables are based on combining the attributes or attitudes of all system members to form a single measure by which the individual members may be identified (Boocock, 1980).

A study by Wilson (1962) in the San Francisco area schools showed that students of a given SES level tended to have higher aspirations and achievement in schools attended by students of high SES. The term "context" was defined in this study as an aggregate measure of students' SES. In a similar manner Coleman (1966), in the Equal Educational Opportunity Report, found that the strongest predictors of student achievement were "contextual factors". These were derived from the number of students enrolled in college preparatory courses, the proportion of white students attending these schools and the proportion of students who own encyclopedias. McDill and Rigsby (1967) also found that holding constant SES context did not reduce the relation between each climate and math performance; they also found that the effects of climate increased slightly while those of SES context became negative.

Halpin and Croft (1963) factor analyzed the interaction among
the school's professional staff. Four of these dimensions (disengagement, hindrance, morale and intimacy) described the teachers' behaviors and their effect on both principal and students. The principal's behavior was also categorized into four dimensions (aloofness, production, thrust, and consideration), which serves as a continuum describing different climates and has been used for numerous studies. Halpin's (1963), Organizational Climate Description Questionnaire (OCDQ) has been used to analyze "school profiles". The same author has claimed that not all schools have the same "personality", and it is this difference that accounts for a variety of school climates. Owens et al. (1969), studied New York Inner City Schools and found that schools exhibited different organizational climates and that these were not due to mere chance. McDill and Rigsby (1967) also factor analyzed school climate into six dimensions. Using multiple regression, the authors examined the effects of these climates on students' math achievement while controlling for family SES and father's ability and education. While controlling for the school's overall SES, various aspects of the school's environment had significant effects on the students' performance. The authors found that achievement was also a function of a number of formal school characteristics. These variables were categorized as the size of classes, homogenous grouping, teacher's salary, and the average per pupil expenditure.

In summary, a selective review of the literature has indicated that schools may be characterized by an individual climate which in
turn may influence both the process of teaching and learning. The school organization theory contradicts the results often claimed by those who have favored social composition effects. It is also clear that school achievement seems to be associated with school characteristics that are often poorly measured and/or omitted in many of the longitudinal studies already cited. Context and climate research studies suggest that the student's academic behavior seems to be enhanced by the aforementioned variables but apparently reduced by school composition variables. Because the writer wants to explore the above assumption, the content and structure of the relations among the variables comprised by climate and context will be examined. Eventually, the writer wants to provide a possible explanation of what types of educational environments are most conducive to high achievement, or at least may influence it among Hispanic high school students.
STATEMENT OF THE PROBLEM

A problem has existed since the mid-1960's when research and lay communities questioned the influence of the public schools in determining student achievement. Because of these implications related to the effectiveness of school inputs, there is a need for additional research using large sample sizes. Furthermore, there is a paucity of research which addresses specifically the educational needs of Hispanic students.

The importance of developing a sound educational policy is essential. It becomes difficult to defend any particular methodology, program implementation or philosophy without consideration of individual variables impacting upon the Hispanic student.

Schools are presently being confronted with reduced federal fiscal assistance. In addition, more is being expected of schools in terms of educational competency-based skills and occupational preparation. Resources are being reallocated and there is a need for clear identification and continuation of school climate, compositional, and context variables which deliver the greatest results in terms of achievement.

The study was designed to investigate the effects of school context, climate, and composition variables which deliver the greatest results in terms of achievement of Hispanic high school
students. The principal elements of the study (independent variables) include elements related to attitudes and instructional methodology (climate), general elements of teacher, staff and student ratios (context), and elements that measure socio-economic backgrounds (composition).

HYPOTHESES

The following hypotheses serve as a framework for the study:

Hypothesis 1

Measures of school climate (teacher and student absenteeism, minimum competency tests, parents lack of interest in student's progress) are not related to the academic achievement of Hispanic high school students.

Hypothesis 2

Measures of school context (student/teacher ratio, highest degree earned by teachers, teacher's years of experience) are not related to the academic achievement of Hispanic high school students.

Hypothesis 3

Measures of school composition (percentages disadvantaged students, drop-out students, seniors in college) are not
related to the academic achievement of Hispanic high
school students.

DESCRIPTION OF THE DATABASE

The database used in this study was obtained from the National Center for Education Statistics (NCES). The database was compiled by three distinct files obtained from the National Longitudinal Study of 1980. The three files contained the information pertaining to the sophomore and senior cohorts (58,000) who were included in this national survey. The data also contains a large sample of sophomores and seniors representing the national population of students in these age groups. An oversampling of Hispanic students was included and for the first time a reliable and comprehensive sample of a language minority population was obtained, never available in other large scale surveys.

The primary purpose of the HSB data, was to observe the educational and occupational plans and activities of young people participating in the American educational system. Because of the large number of variables, the HSB project collected much more data than originally intended. The first analysis of this data, obtained by Coleman et al. (1982), compared the achievement gains of students who attended either private or public schools. The authors in their report, "Public vs. Private", gave indications that certain instructional practices found in high achieving schools promoted higher achievement gains.
The HSB data is particularly salient to the present study because the school variables investigated (climate, context, and composition) tend to have an effect on the achievement of Hispanic students, but more precisely, the achievement of Hispanic students whose primary language was not English (the group classified as the limited-English proficient student - LEP).

The HSB data is relevant to the research problem at hand for three specific reasons. First, the data contains a language file that provides information about the language background, usage and school practices of those students whose primary language was not English. This type of research allows the investigator to perhaps hypothesize how the lack of English proficiency might affect school achievement. Secondly, merging the information obtained in the three files will result in the systematic examination of instructional practices found in the schools where these students attended. Lastly, the HSB data set includes a special file for information on the largest language minority in the United States, Hispanics. Rarely has a national survey, on educational issues, paid attention to the issues of language minorities. Thus, data may be the first ever to provide adequate Hispanic representation in a sample of 136 Hispanic school strata.
DEFINITION OF TERMS

The following definitions are included for the understanding of this study:

Bilingual—the ability to understand and/or speak two or more languages. The term is often used in the United States to either identify members of language minority groups or to denote a deficiency in the proficiency of the English language. This latter usage is totally contrary to the actual meaning of the term.

Bilingual Education—instruction in two languages and their use as a medium of instruction of any part of, or all the school curriculum (Bilingual Education Act of 1974 as amended). This term is often used interchangeably with native language instruction and bilingual/bicultural education.

English as a Second Language (ESL)—an instructional methodology associated with the teaching of the structures of the English language to non-English speakers.

Hispanics—term associated with the persons of either Spanish-speaking parents or immigrants from Spanish-speaking countries. This term may be used with second or third generations who still identify with some aspects of the host culture.

Limited—English Speaker (LEP)—individual(s) that speak another language besides English (e.g. Spanish) and who indicate(s) that at one time or another his/her ability to speak English was limited.

Mother-tongue—the language usually spoken in the person's home when he/she was a child. This term is often used interchangeably with the terms "vernacular" and "primary language".

Native Culture Instruction—often associated with bilingual/bicultural programs. The term does not imply instruction in the native language of the student. Very often it refers to the inclusion of the history, values, and recognition of other cultures through the school curriculum.
School Climate—term associated with a number of school factors that are often said to establish the personality of the school. These factors may include a combination or series of measures that include the attitudes of students and staff.

School Composition—variables related to the socio-economic status of the students, schools, or immediate neighborhoods. These may include some indication of income, prestige, or education.

School Context—includes variables as components of the instructional environment that affect the quality and character of more proximate interpersonal, subjective and structural determinants of school outcomes. (Alexander & Eckland, 1975:403).

School factors—general term used to include school context, climate and composition variables. The term is also often associated with institutional characteristics.

Second language—the ability to speak another language besides the native tongue. The term does not assume levels of proficiency.
LIMITATIONS OF THE STUDY

The inclusion of students from Hispanic origin in this study was based on the respondent's ability to answer the questions posed by the HSB questionnaires. These questions included the origin of the students' descent by indicating one of the following:

1) Mexican, Mexican-American, Chicano
2) Cuban, Cubano
3) Puerto Rican, Puertorriqueño or Boricua
4) Other Latin American, Latino, Hispanic or Spanish descent.

When the investigators totaled the number of responses that classified students according to the above categories, they found that there were many missing values as indicative of the confusion by the sophomore and senior cohort respondents. The criterion for a student to classify him/herself as Hispanic was based on self-identification by the student. This subjective criterion might have caused some individuals (i.e., a person from the Dominican Republic) to select another category such as West-Indian or Caribbean. Individuals who might have mixed backgrounds (e.g., Puerto Rican father and Cuban mother) might have contributed to the number of multiple-punch answers and consequently excluded from the Hispanic population. Nielson & Fernandez (NORC, 1981) reported that 9.9 percent of sophomores and 8.1 percent of seniors were found to have multiple-answer coding. As previously reported in the "Hispanic Profile", a large number of dropouts exit the school system prior to reaching the 10th grade. The sophomore and senior cohorts used in this study, might constitute a "select group" of Hispanic students.
that have survived within the school system. They might indeed be different in terms of motivation or simply be representative of the rest of the student population that remains in school.

When the authors of the HSB report designed the questionnaires they assumed that a large population of their subjects (Hispanics) did not comprehend the English language. For this reason the authors included questionnaires in the Spanish language. Alvin Y. So (1982), in his technical notes related to the HSB data set, reported that only 56 out of the 5,120 students that completed the language file answered in Spanish. The investigator does not wish to say that this small number represents the actual LEP student. This might only be a reflection of the number of students that were recent arrivals and that preferred to complete their answers in their native language. The reader is advised to refer to the definition of the LEP student provided earlier in this chapter. In addition the writer wishes to acknowledge a discrepancy in the HSB study. While the questionnaires were available in Spanish, the achievement exams were not. It would have been interesting to see how many of the Hispanic students would have opted to complete the tests in the native language. Furthermore, results from these could have been compared with the Hispanic students who answered in English. Another comparison would have also been possible if those who answered the questionnaires in Spanish would have also answered the tests in that language.

Another cautionary measure to be considered is based on the report by NORC that on the day that the HSB survey was conducted, at
least 12 percent of the originally targeted student sample was absent. Since there is no way of assessing how many of these were of Hispanic origin, caution should be exerted when explaining the generalizability of the sample.

Among the many factors cited for the large percentage of Hispanic drop-outs, limited-English proficiency is outstanding. For this same reason, the investigator wishes to caution the reader that perhaps a great number of students that have already exited the system are to a great extent from this group. Therefore, the student of limited-English proficiency may be underrepresented in this survey due to their inability to continue their studies in the English language. At this time it is difficult to explain how these sample constraints underestimate the experiences of Hispanic high school students or the tendency to inflate the results of achievement tests by excluding a large portion of the Hispanic student that has been eliminated by the schooling process.

Finally, due to the mobility rates of Hispanics to and from the United States, many high school students might have received part of their education outside of the United States. This is of significance importance since the initial goal of this study included as a main objective to measure the effects of schooling within continental U.S.A. The length as well as the quality of instruction received by students outside the United States will have contaminated the final results of this investigation.
CHAPTER II

REVIEW OF RELATED LITERATURE

Americans have always cherished the belief that an individual's life chances are determined more by one's ability, ambition and personal desire than by one's social class origins. This particular issue has become dominant in our school system ever since formal schooling replaced entrepreneurial activity as the route to success, Rehberg & Rosenthal, (1978). For the last two decades, educators have been confronted with the question as to whether schools or social class exert more influence over a student's academic achievement.

The above issue prompted researchers in the field of education to examine the relationship between home background and school variables. This literature is often referred to as "climate" or "contextual" effects. A survey of this literature also indicates that the terms have not been used uniformly and frequently include ambiguous definitions. Several large scale, cross-sectional surveys, notably the Coleman Report (Coleman et al., 1966), have been conducted with the purpose of investigating the relationship between specific organizational characteristics related to student outcomes. Structural characteristics of schools were often measured through school facilities, staff characteristics and specific curriculum. These were often classified under the generic term, organizational structure. Miller (1980) defined school structure as the "overt structure of activities, settings and schedules and the lack of informal (or hidden) rules, conventions, norms and expectations that
determined acceptable behavior." This concept is associated with the school climate construct.

Anderson (1970) and O'Reilly (1975) used student characteristics on school organization as proxy measures for school climate. The major attempt to define and test the concept of climate was made by Halpin & Croft (1963) through the use of the Organizational Climate Description Questionnaire (OCDQ). The questionnaire used teachers responses about group and teacher characteristics in order to classify schools into one of the possible six organizational climates. This typology, however, has never been developed as a rational framework nor has its internal constructs been validated.

Cohen (1981) associates climate with the description of an "atmosphere" that was pervasive in the school. Cohen believes that it is this climate that is conducive to learning and provides safety and order to schools relatively free of vandalism and discipline problems. Brookover et al. (1979), in his research on Michigan schools, identified three separate constructs: schools climate, school social input and school structure. The authors made an attempt to clarify and operationalize these variables which had been largely unregimented by other researchers. School climate was based on norms and expectations of students and teachers; the social input was measured by mean teacher salary, teacher-pupil ratio, school size and average daily attendance; the school structure included the formalized administrative structure, classroom organization and time allocation, the characteristics of role definitions within the
school, and the pattern of relationship between student and teachers.

Although the term "context" has been used synonymously with school "climate", this study has identified context variables as those social structures that are perceived as the formalized administrative structures of a school. This classification is similar to that of Brookover (Brookover et al. 1979) in his description of social inputs of Michigan schools. These included such things as teacher salary, teacher/pupil ratio, staff/student ratio, school size, teacher's years of experience and formal education.

A survey of the literature shows that "climate" and "context" have not been used in any uniform way. The literature also shows that school climate has been investigated more frequently with varying definitions. The definitions have not been consistently distinguished from school structure or context. For the purpose of our discussion, "school context" will be synonymous with the organizational characteristics and structural attributes of the school. This structure has been described by Miller (1980, p. 168) as the "overt structure of activities, settings, and schedules and the latent or hidden structure of informal roles, conventions, norms and expectations that define acceptable behavior." On the other hand, other authors see the latent structure as a school climate variable (Anderson, 1970; O'Reilly, 1975).

SOCIO-ECONOMIC STATUS
Socio-economic Status (SES) has been considered one of the most powerful predictors of school performance. SES has been measured in terms of the occupation of the principal breadwinner, family income, parent's education, or some combination of these. This variable has been continuously documented to correlate with a variety of achievement and aspiration measures, including grades, achievement test scores, drop-out rates, college plans and the total amount of formal schooling. But, perhaps, what best characterizes this variable is its ability to be strongly associated with a number of family characteristics and attitudinal measures that may be either intervening or explanatory variables in the SES-school performance relationship.

In early studies, Duncan (1972) and Blau (1967) presented evidence that education was a critical intervening variable in the intergenerational transmission of status. Fathers' occupational prestige and education were found to contribute modestly to sons' occupational attainment when controlling for education. Following this line of research, it can then be assumed that SES facilitates the educational attainment of individuals. In light of this evidence, it could also be assumed that a higher level of education would clearly maximize the effects of social background: the more schooling, the greater the effect of education on college aspirations and continuing education.

This latter assumption applies to those ethnic minorities who, historically, have been low in the educational and economic scales in
comparison to the rest of the population, and who have believed for so long that "education does make a difference." Thus Coleman's (1966) statement on the effects of the educational system on individuals' achievement and aspirations are disheartening to those ethnic minorities.

In the Equality of Educational Opportunity Report, Coleman et al (1966:316) summarized the impact of school input with the generalization:

Differences in school facilities and curriculum, which are the major variables by which attempts are made to improve schools, are so little related to differences in achievement levels of students, that with few exceptions, their effects fail to appear even in a survey of this magnitude.

Many educators' reacted to this statement with disbelief, and questioned its validity. Nevertheless, Coleman's research had such a significant impact on educational policies that during the next decade the notion that schools had little, if any, effect on achievement of students beyond the effect of socioeconomic background became increasingly acceptable. American educators, pressed to explain the failure in school of low-status and minority-group students, relied heavily on explanations supporting a "theory of cultural deprivation." This theory proposed that the "culprit" home-background, stemmed from the socialization patterns afforded by the home and neighborhood and, in turn, caused conflicts in the school social system which resulted in low achievement levels.
As far as minority groups are concerned, the notion of quality education is associated with minimizing inequalities in educational opportunity that have manifested in the social stratification system. In providing plausible alternatives for low-SES groups, Boudon (1973), in his model of "Inequality of Educational Opportunity" (IEO), proposed two ways by which inequality in education could be eradicated: either a society is unstratified or its school system is undifferentiated. The latter proposition is at the heart of our original question: "Do schools have an effect on student's achievement?" If one considers Coleman's earlier findings as reliable, then the answer needs no further analysis. If, however, one considers the American school system "undifferentiated," one could expect the eradication of IEO.

These two statements present a paradox. One statement denies the impact of the educational system, while the other questions whether or not the American public education has an effect on its students. It is this latter aspect of the paradox that will be addressed in the present study.

The most comprehensive research that established the strength of SES on school-achievement was the Equal Educational Opportunity Survey (1966). Coleman's study was by far the largest national survey on public education, and therefore the most publicized. Following this survey, the Commission on Civil Rights (1967) in a report entitled Racial Isolation in the Public Schools highlighted the EEOS findings:
a. Schools were highly segregated.

b. Minority group students had larger classes, fewer textbooks and library resources, poorer facilities, less access to college preparatory curriculum, and fewer extra curricular opportunities than whites.

c. Teachers of blacks and Hispanic students were consistently of lower quality than those of white students.

d. Minority group students (with the exception of Asian Americans) scored lower in achievement at every level than the majority group with an ever increasing gap for each year in school.

Coleman's report, however, went beyond the mandate of surveying the lack of equality of educational opportunity by inferring causal factors, through regression analysis, for the differences in student achievement. According to Smith (1972), at least two major and controversial conclusions were reached:

1) amount of school resources correlated slightly with poor achievement scores. Achievement was related more with school attendance with classmates of superior educational backgrounds and aspirations, and

2) the extent to which an individual feels that he/she has control over his/her own destiny was highly correlated with achievement.

Since the release of that report, educational research has dramatically increased over the issue of SES and its alleged strength to achievement over and above any other variables. Since then, a number of educators have sided with every conceivable viewpoint; from Jensen's (1969) thesis that compensatory education has failed because Blacks (and by implication, other racially "tainted" groups)
are inherently inferior, to Jenck's (1972b) reassessment, Schooling in America indicated schools were a poor predictor of occupational and social mobility. Other studies, Barkhead (1967), Wilson (1967), and Gordon (1969) followed the EEO tradition, but focused on other aspects of family backgrounds often associated with SES. As part of the criticism of the Coleman report, many economists, such as Armor (1969) and Hanushek and Kain (1972), attacked the findings by claiming that the researchers examining the school system emphasized SES because they were closely associated with sociology as a discipline. Some of them also argued that there was no solid theoretical model of the schooling process analogous to economic production models. In the process, SES became synonymous with other variables used by researchers in search of background variables that (excluding income) had an effect on achievement.

A historical degression is needed here to substantiate the above statement. The reader must remember that concerns about equality of educational opportunity came at a time when the Federal government had increased its role in public education. Russia's Sputnik spurred America into an age of tremendous technological competition through the establishment of scholarships and programs that would maximize the development of our human resources. It was apparent that a large sector of this country, particularly minority groups, had not fully entered into the new and rapidly developing technological society. The unequal participation of minorities was further highlighted in presidential campaigns and became an issue of national debate. The
"War Against Poverty" became a national concern. Consequently, a number of Federally funded programs were created in order to alleviate the condition of the "disadvantaged" through the flow of federal dollars earmarked for low-SES families. This concern was exemplified by the Elementary Secondary Education Act (ESEA) of 1965, and its subsequent amendments. This Act represented a national effort to eradicate the consequences of poverty upon the educational system as later revealed by the EEOR. As a result of the "Coleman Syndrome", and further reinforced by the efforts of the Federal government in eradicating poverty, other researchers began to associate low income and family structures as the cause of poor academic achievement. In a similar vein, the earlier Moynihan Report (1965), concluded that broken homes, father's absenteeism and unemployment were all associated with poor academic output. This often resulted in the assumption, although statistically unsubstantiated, that relative economic security vis-a-vis family structure was responsible for success in school.

Similar studies across other meritocratic countries revealed findings that were consistent with Coleman's. In a much more comprehensive study of 11, 12, and 15 years old students enrolled in English public schools, Marjoribanks (1977) examined the relationship among three sets of variables: (1) family environment; (2) children's attitudes towards schools and locus of control; and (3) cognitive performance. Through the use of multiple regression, the author found that affective characteristics and cognitive scores are
positively related at each level of family environment; and that family environment and cognitive performance were positively related at each level of attitudes toward the school and with locus of control. It is also interesting to note that at poor environment levels, strong positive attitudes toward school and feelings of control may overcome environmental limitations. Sumner and Warburton (1972) conducted a study in England entitled: "Achievement in Secondary Schools." Through the use of factor analysis, the authors found that features from the home background, the school and the student's personality contributed to a "general cultural level" factor in which environmental effects predominated. Pupils whose cultural background was poor, as measured by a combination of income and status, had a greater probability of possessing unfavorable attitudes towards schools and consequently reached lower levels of school attainment.

Prior to the Coleman research, analysis related to SES had been conducted by Wilson (1959) in the San Francisco secondary schools. Wilson measured SES as a combination of the total student body for each individual school. This total combination was labeled, at the time, as the "context" of the school. In early studies of school variables, context or climate was associated with a combination of measures of different attributes despite the fact that these still measured SES. Researchers intended to examine the degree by which these aggregate measures affected an individual's (pupil's) attitudes and/or behavior. Since the level of analysis was the school, the
variables were named context or climate. The significance of the Wilson study lies in the fact that status of parents had an independent effect on educational aspirations of students, but that this was modified by the dominant class character of the school's student body. In other words, sons of high SES families had higher college aspirations when they attended schools composed of similar high SES pupils. When the same pupils (high SES) attended lower SES schools, the aspirations were deflated. Similar effects were found when Wilson used father's and mother's education as independent variables. School SES, as measured by a combination of measures including income, education, family stability, etc., had an additional effect over the pupils' family origins.

Wilson (1967) conducted a second major study at the time that the EEO research was published. Concerned with the same basic questions posed by Coleman, Wilson examined both the racial and socioeconomic context of schools. Elementary as well as secondary schools were included in the sample. Racial composition was measured by the ethnicity of pupils (blacks and whites), and SES by the number of families headed by unskilled laborers, unemployed and welfare recipients found in the individual schools. The dependent variable consisted of mean reading achievement scores of sixth graders. Overall, Wilson found that this measure was affected by the social composition of the individual school. SES measures accounted for the greatest amount of variance in the reading scores beyond that accounted by race or neighborhood context.
Wilson's second report was significant in as much as the research included two independent variables (race and socioeconomic status) and their effects on (reading) achievement measures. Although the independent variables were meant to measure school factors, nevertheless, under the criteria used in this study, they can be seen to measure SES variables.

A common problem encountered by the investigator is the inconsistency of definitions of school climate and context. In summarizing the conclusions of the EEOR and similar studies, school factors have apparently accounted for relatively little variance in achievement measures. Family background variables, as measured by income, occupation, education or other combinations of variables, seem to have greater influence on achievement and aspiration measures. Numerous authors have criticized such findings on the grounds that they are cross-sectional and that progress in achievement measures is not reported. Longitudinal studies have been preferred over the "snap-shot" approach. Bridge et al. (1979), in reference to the above argument, have stated that school factors have an effect on achievement after exposure of instruction over a period of time. Bridge (1979:172-73) concluded that: "In all regions of the country and in all racial and ethnic groups, school inputs become more important as the child progresses through the grades." To this the authors add that "...in every region and grade, school facilities and curriculum have more impact on blacks than on whites." Evidence of previous studies have reinforced the finding that school factors
tended to have a greater influence among low SES students. Both Coleman (1966) and Marjoribanks (1967) provided similar conclusions. Boocock (1973) has also suggested conclusions of the same nature, as evident from her review of the social organization literature. Boocock claims that children of minority racial groups are more sensitive to all the characteristics of schools they attend than their non-minority counterparts.

A second argument used to minimize the claims of SES is based on the ability of researchers in measuring this variable accurately. Bowles and Levin (1968) state that the data provided by EEOR was inadequate in respect to the measurement of family-background variables. They claim that in the traditional sense, SES has been measured as a weighted combination of education, occupation and sometimes income. In the EEOR analysis, parent's education was used as a proxy for SES measures. The same authors claimed that this was not an adequate index of SES for those racial/ethnic groups included in the study. The authors concluded that such false assumption inflated the amount of variance in achievement attributed to the group characteristics and that individual characteristics were not properly measured.

In a similar note, Morgan and Miller (1977) have found that studies reporting the results of desegregation have failed to properly control for SES. For this very same reason, the authors claim that school characteristics may have an effect on minority students not clearly associated with high SES students. Billingsley
(1970) has also indicated that social scientists have exclusively focused on families of low-SES and that this perspective provided a distorted image of the low-SES families.

In light of the above criticism, the HSB longitudinal data will provide a more accurate index of characteristics that are considered scientifically adequate. Variables under the school composition construct include measures of both parental education, income and occupational status. For this very same reason, the errors associated with the EEOR study, namely, overestimation of family background at the expense of school factors, are expected to be minimized.

SCHOOL CLIMATE

The conclusions that schools contributed little to the explanation of the inequalities in student outcomes stimulated subsequent research on the social characteristics of schools. As exemplified by the literature, these studies indicated that the nature of the school norms, expectations, organization, and context, explained the variance in school outcomes as well as or better than family background.

In order to reconcile discrepancies existing in the sociology of education literature, it is necessary to note that context and climate have been used interchangeably. Because of these inconsistencies in definitions, the more general term "school climate" is preferred. Brookover, et al. (1978:302) operationally defined school climate as encompassing a "composite of variables as
defined and perceived by the members of this group. These factors may be broadly conceived as the norms of the social system and expectations held for various members of the group and communicated to members of the group." The same authors stated that aggregate norms, expectations and beliefs are not synonymous with the social composition of students. Among the available definitions of "school climate," David Stewart (1979) defines it as: "...amorphous environment, built by the inhabitants of the school perceived differentially, depending perhaps on their status within the institution, but affecting them all and communicated to observers."

The writer wants to stress that the extended concept of school climate is to include characteristics of schools that are of an instructional and curricular nature. School climate is not limited to attitudes. As best described by Anderson (1968), these social climate areas include interpersonal relationships among pupils, pupils and their teachers, pupils and both the subject and the method of learning, and finally pupil's perceptions of the structural classroom characteristics.

It must be made clear that examining the climate of a school is tantamount to the evaluation of a school and more particularly of the teachers and principal in it. This particular strategy is preferred among those concerned in defining the dimensions of equality in the educational system. In examining climate, the burden of showing educational gains is shifted to those in the schools and at the same time the cultural determinist approach is placed in doubt. Among
minorities, including language minorities, such view begins with the premise that if schools were structured in a different way, these changes would consequently improve students performance. It is assumed that something related to the total "school experience" explains the relationship between achievement and school factors beyond those associated with school composition.

Kandell and Lesser (1970), while studying high school students from Denmark and the United States, found that school social class affects students college plans independently of parental aspirations. The authors explain this difference by the effects of SES. It is evident that what the authors imply refers to something related to the school atmosphere that apparently is a result of aggregated SES measures. Other authors, such as Tornatzky et al. (1980), have followed the same approach but provided different interpretations. The authors while studying schools with similar SES in Michigan, found that only a small proportion of the school achievement variables could be attributed to SES. Furthermore, Bain (1968) found that peer influences in addition to social class had an effect on educational plans for students.

TEACHERS

Litwin (1968:24) has operationalized the term climate as having a "...relatively enduring quality of the total environment that (a) is experienced by the occupants, (b) influences their behavior, and (c) can be described in terms of the values of a particular set of characteristics or attributes of the environment. In this sense
climate is determined by characteristics of the school population including their conduct attitudes and expectations manifested in a sociological context such as a school. Following this line of thought one must turn to the literature related to the "atmosphere" that is often associated with teachers' perception. The classical study of Rosenthal and Jacobson (1968) has been cited as evidence that teacher's perceptions of children's ability are crucial to academic achievement. This becomes important especially for schools with a high ethnic concentration of students different from the ethnic composition the of school staff. Early studies examining awareness of sociocultural differences, (e.i. Ulibarri, 1959), have found that for the most part teachers showed little awareness of the differences among Spanish-American, American-Indian and Anglo culture students. In the same vein, Rosenthal and Jacobson (1968), using a random sample of low-SES elementary school children, found that these students had increased gains in IQ when teachers had been informed that they were most likely to make dramatic gains. Although the study has been criticized for its methodology and lack of replication, Lester and Letchworth (1972) still argue that teacher perceptions, based on student academic potential, influence student performance vis-a-vis teacher behavior. Despite the criticism related to the "self-fulfilling prophecy," similar observations related to effective schools will be examined.

A number of studies have examined the effectiveness of the teacher's role upon student achievement. Cantrell et al. (1977)
examined the effectiveness of teachers attitude, knowledge and verbalization patterns as they related to students achievement. Analysis of variance showed that students of low and medium IQ, did better when taught by teachers with high knowledge and positive attitudes, without having a negative effect on high IQ students. In a similar study of 6,032 Canadian high school students, Humphrey (1976) found that teacher expectations and grades were highly correlated with intelligence rather than with SES. Concerned with the direction of the causality, Humphrey still found the relationship to be significant due to the fact that grade average tends to "cause" both teacher and students expectations, and academic program selection (tracking). Although teacher expectation, contrary to the self-fulfilling prophecy theory, may have an initial effect on student achievement, this is diminished by the end of high school. If such is the case, then the writer hypothesizes that locus of control and positive normative groups perceived by students will influence achievement beyond that of school composition.

Benjamin (1980) reported on four Chicago city schools which were instructionally effective. Although Benjamin's observations are not considered as hard-evidence, his observations relate to the basic question of whether or not the inequities imposed on children by their home, neighborhood and peers are carried into their schools. If Hispanics and other minorities expect schools to be the institutional equalizers, then these schools must have a strong effect independent of the child's social environment. Benjamin, as
an observer, concluded that what made these schools instructionally effective was the "leaders that make schools work." In his opinion, these leaders set the stage for success, are personally involved in the school, control the direction of the educational programs, and establish and achieve goals for the school, teachers, and students. There was a school-wide emphasis on basic skills, the use of direct teaching styles, clear rules, and strict but not overbearing discipline.

Although a reporter's view of effective schools may not be considered scientifically reliable, professional educators and researchers have encountered similar observations. Other studies, dating from the early 1970's support these findings. Weber (1971) studied four instructionally effective inner-city schools and all four had "strong leadership" with a principal who was instrumental in setting (a) the tone of the school, (b) helped to decide on instructional strategies, (c) and who helped to organize and distribute school resources. All four schools strongly emphasized the acquisition of reading skills which were reinforced through frequent evaluation of pupil's progress.

Madden, Lawson, and Sweet's (1976) study of twenty-one pairs of California high-achieving and low-achieving elementary schools, revealed that principals provided more support for teachers in the high-achieving schools, and that teachers in the high achieving schools, were more task-oriented in the classroom. In the high achieving schools, there was more evidence of the monitoring of
student progress, atmosphere conducive to learning, and there were fewer heterogeneous instructional groups.

Brookover and Lezotte's (1977) study of eight schools, six with improving pupil performance and two with the declining pupil performance, found that improving schools placed an emphasis on accomplishing basic reading and math objectives. Teachers and principals both believed that all of their students could master the basic objectives. Staff members held higher and increasing levels of expectations regarding the performance levels of students, and assumed responsibility for teaching basic skills. Principals were more likely to be instructional leaders, more assertive in their leadership role, more discipline oriented, and assumed responsibility for the evaluation of the achievement of basic objectives.

In studies of effective schools, Edmond (1978) suggests that differences in the social class and family background of pupils should not be attributed to school failure. Edmond suggests that the correlation between achievement and racial-socio economic characteristics is indicative of serious problems relating to school management and organization, teacher and administrator expectations, school climate and student perceptions. The author indicates that the failure of students to achieve at rates approximating national norms should not be attributed to non-school characteristics such as race, ethnic background, poverty or family stability. The existence of schools having all these characteristics and still succeeding in producing students high achievement is suggestive that these
variables are not determinants of success. Walberg and Anderson (1968), while studying the relationship between classroom climate and student achievement of approximately 2,100 high school students, found that students performed better in a battery of cognitive and affective tests when they perceived their treatment in school as positive and fair.

The factor described as "synergism" (the positive perception of students classes) in the Walberg study, has also been found by Anderson (1970) in his study of classroom climate among high school 10th, 11th, 12th graders. Anderson found that the concept of "cohesiveness" tended to favor females of high ability. This particular finding is associated with the positive perception described by other authors as a positive class climate.

St. John (1971), in her review of the Coleman's findings (EEOR), states that a strong relationship between a pupil's attitudes and achievement was found at all grade levels. These attitudes as measured by interest in school, self concept and locus of control, could be all categorized under the school climate variable. Extrapolating from the Pettigrew (1967) and the Heriotts (1963) studies, students through their peers perceptions, create a normative reference group. It is this reference group that is responsible for creating the "atmosphere" often associated with school personalities. Therefore, if a student finds the school where homogenous grouping and academic achievement is emphasized, then a positive school
atmosphere may influence individual achievement beyond social environmental factors.

SCHOOL CONTEXT

In the early history of American public education, examining the quality of education was tantamount to measurement of resources allocated to schools. In an early attempt, Mort (1946) established systematic criteria by which the quality of education was measured through smaller pupil-teacher ratios, availability of library resources and an increase of other non-teaching professional support staff. Following this same trend, Conant (1959) argued that larger schools meant better quality of education due to the diversity of more comprehensive educational programs and consequently a specialized curricula. In this same historical context, American public education was measured by the resources allocated to schools. Coleman (1966), in his EEOR, measured our nations school quality in a similar fashion.

There exists among educators a general consensus associated with the above tradition that the way a school is designed has an important impact upon the effectiveness of learning and upon the attitudes and behavior of the learner. Ideally, this general consensus could be tested if students could strictly be exposed to a specific set of school organizational factors. Realistically, this analysis is compounded by the fact that students are constantly exposed to other environmental factors which make this task difficult and its effects hard to untangle.
After the publication of the EEOR, and the number of criticisms provided by other researchers, a series of studies examined school organizational variables, McDill (1967), Brookover (1978), Wagner (1978), as evidence that the unequal levels of educational attainment documented were not solely caused by socioeconomic background factors. These studies examined an array of structural components of schools, including political and financial resources, authority, social relations and patterns of interaction. These studies intended to find the educational factors, often omitted by input-output research models, that had possible effect on achievement.

Traditionally, research examining organizational factors is associated with the term "context." Context has been operationalized by aggregating scores of the members of a collectivity on some variable of interest (Boocock, 1972). Hauser (1970) claimed that such method was weak and constituted a "contextual fallacy" that disappeared when individual variables were taken into account. Despite Hauser's claim, Mood (1971) and Farkas (1974) suggest that the fallacy does not trivialize contextual effects and that indeed such effects are found among groups. In further discussion, Hauser (1974) agrees that contextual effects work if group characteristics are correlated with the dependent variables affecting group performance.

As previously stated, school context and climate have been used interchangeably throughout the literature. Although in this study, school context has been operationalized as a separate variable of
school structural organization, this variable is similar to school climate since it is based on aggregate measures. McDill (1967) and Brookover et al. (1978), found that these two variables were separate dimensions of the school structure, and that both had an independent effect upon student achievement. Wagner (1978), on the other hand, described three categories of variables as measures of school context. These variables included (1) family-oriented characteristics, (2) aggregate characteristics of student compositional effects and (3) institutional characteristics such as size of budget, facilities, student-faculty ratio and so on. Based on the above, school context will strictly be used for aggregate measures connected with institutional characteristics. These will be limited to school size, ratios between teachers, counselors and students, advanced degrees held by the above, salary and time spent in curricular matters.

The number of studies that have explored the concept of "context" are similar in scope by the mere fact that school and classroom factors are examined. These studies have focused on organizational variables that account for between-school variation. Ogbu's (1975) ethnographic study of a Southern California town comprised of minorities, Blacks and Mexican-Americans, found that access to higher education was directly attributed to the lack of guidance and counseling services in the high school programs. The same authors found, contrary to common expectations, that the minority families were highly motivated and valued education greatly. Cicourel and
Kitsuse (1963) found that lack of coordination and planning from guidance-personnel, rather than lack of information by parents and students, were responsible for track placement. Similar studies by Weinberg and Skager (1966) and Armor (1969) indicate that the degree of utilization of career guidance services by high school students is related to family socio-economic status. Students from lower SES use the professional services of counselors less than their middle and high SES counterparts.

This research is valuable in providing insight into the role of the school counselor as an educational decision maker in a students' high school career. Rosebaum (1976) found that track placement of students was also related to the quality of the counseling provided by high school counselors and the differential socialization patterns among students. College-bound students, the author claimed, gained access to information crucial for college students while in contrast, non-college bound students had less information about college and were often the brunt of negative and degrading attitudes by counselors.

Heyns (1979), in her examination of forty-eight urban public high-schools, found that educational outcomes were dependent on the criteria for curriculum selection. Heyns claimed that tracking is associated with family-income to the point that one is working with the other. This association seemed to work negatively for low-income students since a great majority of these were eventually placed in a non-college bound curriculum. The author stated that this presents a
paradox in American public schools, since they have been entrusted to equalize opportunities for minorities. The organizational structures related to student selection and curriculum tracking work opposite to the expected goal.

Heyns findings are important as they reflect Parson's status ascription theory (1959), with reference to the high-school curriculum. Parson sees curriculum differentiation as the major mechanism by which secondary schools perform their function of "selecting and allocating youth to adult roles." Heyns concludes that a particular curriculum favors students, and consequently their achievement, by emphasizing those skills used often in the evaluation of student outcomes.

Alexander and Eckland (1975) found that senior year enrollment was a major determinant of educational attainment. The authors also claim that curriculum enrollment has stronger effects on academic achievement over those of ability. Similarly, Alexander and McDill (1976) examined the various social-ethnographic characteristics that influenced enrollment in college-preparatory programs. This enrollment was also examined as it mediated on the achievement of students. Curriculum placement was found to have an influence on all subsequent outcomes. This placement also had influences on the educational plans and self-esteem of students. It was concluded that curriculum differentiation contributed to the maintenance of status advantages and disadvantages through the educational system as it transmitted status origins and outcomes among students.
The above discussion is relevant as it applies to the Hispanic student population. One major concern deals with the selection of a particular track in the schools for these students. If Hispanic students are deficient in the skills needed to enter and continue in college-bound curricula, then the options are limited to the selection of a vocational training curriculum or the eventual exiting of the public school system. As already stated earlier, the Hispanic student drop-out population has increased. It is estimated that one out of every three Hispanic youth, between the ages of 18-21, failed to finish high school as compared to one out of seven among white youth (U.S. Commission on Civil Rights, 1978). But more alarming are the findings of Borus et al. (1980) who found that Hispanics residing at age 14 outside of the United States had a higher probability of dropping out than Hispanics who resided in the United States. This could simply reflect the lack of opportunity given to students in American schools or the lack of curriculum strategies that failed to meet the needs of limited-English proficiency students.

Despite the strong claims that curriculum selection may exert a strong influence on the achievement of students, there are other contextual variables of equal importance. Among this research, we find variables such as teacher characteristics, styles and effectiveness. Since this literature is immense and non-conclusive, the writer will concentrate on those studies related to the concept of "contextual effects" as previously defined. An important change in this literature was made by Mitzel (1960) when he developed a
paradigm of "teacher effectiveness" by identifying four basic categorical variables. These have been classified as (1) "pressage", (2) "process", (3) "product" and (4) "environmental". The pressage construct included teacher characteristics and competencies, the process construct corresponded to teacher performance variables and product to teacher effectiveness. Environmental variables came to be associated with "context".

Levin (1968) investigated the relationship of years of experience and verbal scores of teachers to student achievement. The author found that teachers years of experience produced higher student achievement than teachers' verbal ability. Morgan (1979) also examined teachers years of experience and race as contributing factors in the reading and mathematic achievement of black pupils in segregated schools. The results indicated that years of experience in teaching had a significant increase in reading scores but not in mathematics. Teacher's race had no significant impact on either of the academic measures.

Brookover et al. (1979), while partitioning the variance of three sets of variables, socio-economic status (racial composition and personal inputs), school social structure, and school climate, found that except for minority group schools, teachers salary, teacher experience, percentage of teachers with graduate degrees and smaller school size all contributed positively to achievement. The variables identified under "personnel", in Brookover's study, are those identified in this study as "context variables". Brookover
identifies these as including school-size, average daily attendance, and number of professionals per 1,000 students. Teacher qualifications included years of experience, tenure, training and salaries.

Concerned with the autonomous effects of schools, Hope (1983) compared American and Scottish educational outcomes. The author claims that by examining a meritocratic system, such as the one found in Scotland, one may distinguish gains in achievement exclusively attributed to either contextual or socio-economic effects. Hope contends that meritocratic systems are able to produce higher outcomes and a high degree of efficiency as a consequence of the student selection and not through contextual effects. Hope identified this effect as "heteronomous" and states that schools transmit success in achievement that is basically accounted by the socio-economic background of the students (composition). In his findings, the author states that American schools, despite the claims that they do not produce any effects beyond those related to school composition, exerted a stronger effect than those in Scotland.

Other literature that has contributed to the topic of contextual effects is found in the data generated by the International Association for the Evaluation of Educational Achievements (IEA), (Foshay et al., 1962). The IEA represents the first concerted effort to compare achievement levels among different nations. The central purpose of this research was to find what factors best explained differences in student achievement. In response to the initial
purpose of the study, the consensus was clear that home background factors tended generally to be more important than school related characteristics. Still, there was evidence that some school factors were substantially more influential in certain subject areas than in others. For example, it was found that school related factors had greater influence in science and foreign language. These contextual factors tended to also increase their influence with an increase in the students' age. Heyneman (1976) has taken this point further by stating that home background factors appear to be more influential in the developed countries, whereas school related factors were highly influential in the case of less developed countries. The writer believes that a "threshold effect" might be responsible for making school factors highly influential at certain levels of social and educational development. Coleman had also hinted to a similar effect among low-SES students in his EEOR findings. The data base generated by the IEA project gave other researchers an opportunity to conduct subsequent analyses. Among these, Hensen (1978) analyzed sixteen teacher-related variables and found that at least four were more important than others. Among these, qualifications, experience, amount of education and knowledge were most important. In addition, two demographic characteristics, teacher's sex and age had an influence among upper secondary students.

Simmons and Alexander (1980) also found that teacher certification and academic qualifications had a greater influence among secondary level students. The same authors found that the
amount of homework done, the physical conditions at home and the amount of time spent in reading were important predictors of student achievement.

In analyzing data from the IEA project, Coleman (1975) concluded that reading achievement was influenced by home-background variables but that this influence is not necessarily found in other subject areas such as science. He also states that if other tests were used, less related to reading, school effects would be larger than those estimated in previous studies. Coleman says (1975:377), "these studies, by using as a criterion that subject least affected by school variables and most affected by home variables, have probably underestimated the general effects of the school relative to the home".

Bridge et al. (1979) in the Determinants of Educational Outcomes, a compendia of input-output research covering a period of fifteen years, concluded that many characteristics of schools, teachers and student bodies, all affect educational outcomes. But they state that although school-related characteristics may have relatively small influences, these are crucial because they are subject to control by policymakers.

Bidwell and Kasarda (1975) examined a large sample of schools with a substantial range of size and fiscal resources. One hundred and four schools, K-12 were examined from a pool of one-hundred and seventy-eight. The authors found that an increase of school size and fiscal resources were associated with better trained personnel. In
turn, this resulted in a better trained staff and smaller pupil-teacher ratios. This decline on pupil-teacher ratio had an effect on the median achievement for reading and math achievement. The same authors hypothesized that some of the above gains might have been cancelled out as the number of disadvantaged students increased as a consequence of growth in size.

Coleman et al. (1983) found that among the high performance schools, both in the public and private sector, larger percentage of teachers held advanced degrees. Teachers in larger school districts were also found to be more uniformed in providing academic resources and were less diversified in the curriculum. The curriculum offered in these schools was more academic-oriented, and courses in technical and vocational areas, often associated with non-academic programs, were not offered. In the same report, Coleman et al claim that private schools produce higher achievement outcomes than public because the former create higher rates of engagement in academic activities, student attendance is increased and there are more rigorous courses which require more homework-preparation time.

RECAPITULATION

In this chapter, an attempt was made to present a selective review of the literature related to school climate, school context and school composition. Operational definitions were established in order to classify research consistent with the the goals of the investigation at hand. As evident from the review, there is considerable a body of research in each camp (climate, context, and
composition) that seems to favor each of the three constructs selected. The investigator also included some of the main criticisms that have been raised against the claims that SES is either solely responsible or has at least exerted stronger effects on academic achievement. Both the school composition and school context constructs have been clearly identified, since they are formed by concrete variables that seem easier to measure. On the other hand, the school climate construct has been more ambiguous as evident from the literature reviewed. As previously stated, researchers used variables under the climate construct that had once been included under the context construct. The climate construct has also been described as a set of internal perceptions by either a collectivity or by individuals. For the purpose of the present study, this construct was used to describe a combination of program strategies, perceptions by students, teachers and other administrative staff. This particular variable may be best described as a continuum which is not audience specific (i.e. teacher, principal, school, classrooms & students), or content specific (leadership, expectation, curriculum) but reflects behavior by staff, teacher and students and other program decisions reflecting some underlying philosophical orientation.

The attempts to improve student achievement may require a variety of strategies. But it is clear that those variables that could possibly be manipulated by school policy decision-makers may also exert effects on achievement that had been associated only with
SES. Therefore, the investigator has included in this research the independent variables that throughout the review of the literature have been associated with the school climate, context and composition variables constructs.
CHAPTER III

METHOD

The following null hypotheses served as a framework for the study:

Ho1: Measures of school climate (teacher/student absenteeism, competency exams, and parents' lack of interest in student's progress) will not increase the academic achievement of Hispanic high school students.

Ho2: Measures of school context (teacher/student ratios, teachers' years of experience, and teachers' highest degree earned) will not increase the academic achievement of Hispanic high school students.

Ho3: Measures of school composition (percentage of disadvantaged students, percentage of seniors in college, and schooling the student thinks will get) will not increase the academic achievement of Hispanic high school students.

The principal statistical technique used to examine the data was multiple regression analysis. Among the Statistical Analysis System 59
(SAS) packages available, the Stepwise procedure was used with three methods; (1) forward selection, (2) backward selection and (3) stepwise regression. An additional procedure included under the multivariable analysis package, canonical correlations, was also used. This procedure was employed in the initial stages of the investigation in order to provide an analytic method appropriate to the large number of independent variables categorized under the constructs (climate, context, and composition) already defined in Chapter I. This method provides an analytical view of the overall relationships of the sets of variables, taking into account both the correlations of the variables within each set as well as the correlations between the two sets. This procedure helped to minimize the number of variables that were initially selected. Only those variables which had a greater potential for explaining variation in the dependent variables were later included in the multiple regression analysis.

The following formula for the F ratio will be used to test the null hypothesis for each construct:

\[
\frac{R^2/K}{(1-R^2)/(N-K-1)} = F
\]

This formula will yield the proportion of variance accounted by K (number of independent variables) and that accounted by the proportion of error. The level of significance has been assigned at p=.05, a larger or smaller F ratio will either reject or accept the
null hypotheses.

The multiple regression equation used to test the above statistical hypotheses is:

\[ Y' = a + b_1 + x_1 + b_2 x_2 \ldots + b_k x_k \]

Where:

- \( Y' \) = Predicted score
- \( a \) = Estimate of the mean of the population corresponding to \( X=0 \) and \( P \) = regression weight in the population (intercept or constant)
- \( b \) = Estimate of the population regression weight of the corresponding variable (regression coefficient).
- \( X \ldots X_k \) = number of dependent variables clustered under each of the climate, context and composition variables.

The dependent variables in the above hypotheses have been operationalized as the separate scores of a test battery, in Vocabulary, Reading and Mathematics, given to the students included in the sample. The independent variables will consist of those measures, (school climate, school context, school composition) having a correlation greater than or equal to \( >.25 \) with the individual test scores.

Other corollary hypotheses dealing with between school climate, context and composition and reading comprehension, math and vocabulary will also be examined.

As pointed out in Chapter I, the data base for this study are
file tapes obtained through the National Center for Education Statistics, U.S. Department of Education. These tapes contain the High School and Beyond data base of statistics obtained from a national sample of high school sophomores and seniors as they exit from the American School system into the critical years of early adulthood.

SAMPLE

Funded by the National Center for Education Statistics (NCES) and conducted by the National Opinion Research Center (NORC), the HSB data set was the first wave of a national longitudinal study of the cohorts of high school students in the U.S. in 1980. The HSB project design included a highly stratified national probability sample of over 11,000 high schools with 36 seniors and 36 sophomores per school. The overall response rate for schools was 91% and for students 84%. Over 30,000 sophomores and 28,000 seniors enrolled in 1,015 public and private high schools across the nation participated in this study. The HSB sample represents the nation's 10th and 12th grade populations, totaling about 3.8 million sophomores and 3 million seniors in more than 21,000 schools in Spring, 1980.

The HSB data provides a set of resources for researchers interested in language minorities. Not only is the data rich in the number of variables, but it also includes information on the largest language minority in the U.S., i.e., Hispanics. Prior to this study, national surveys on high school students of language minorities was negligible. The total of 11,303 respondents found in the language file, these are classified as language minority youth (LMY) because
they are high school sophomores and seniors who either now speak a non-English language or at least a non-English language is spoken at home.

The specific tapes used to examine the variables (see variable sheet) included under school climate, context and composition have been obtained from the student, language and school files. These include:

THE STUDENT FILE - The most important file in the HSB data set, contains responses from each student in the sample to a fairly extensive questionnaire and to various cognitive tests. Consequently, this file contains responses from all 58,000 students in the HSB sample and includes as many as 638 variables.

THE LANGUAGE FILE - When students responded in the questionnaires to a non-English language experience during childhood or at the time of the survey, they were asked to complete an additional questionnaire. Thus 11,303 of the 58,000 students who answered HSB questionnaires, provided additional information. The language file contains 5,120 responses from Hispanics, although a slightly smaller number is documented in our observations. HSB included a total of 6,700 Hispanics in their sample. Sixty-two percent of these, that answered the additional language questionnaire, did not speak English as their native language; the other 38% included English as their first language.

THE SCHOOL FILE - The administrator in each selected school in the HSB sample was requested to complete a questionnaire about the school
and their responses are included in this school file. This file provides information about the social context in which the students received their high school education. A total of 988 school administrators responded to questions containing some 237 variables.

When the language file is merged with other files in the HSB data set, the newly merged file provides important data, that can provide research based on the social background of language minority students, their experience in the U.S. high schools and their educational achievement in comparison with non-language minority youths. An additional opportunity for researchers is to examine this data for language minority students from a holistic perspective. The language school file will provide information as to what types of schools most language minority students attend, what is the ethnic composition of the student and the social environment in these schools, and what kind of language courses are offered. In addition, the questionnaires include specific items related to the basic constructs of this research.

SELECTION OF THE INDEPENDENT VARIABLES

The independent variables for this research were selected according to the criteria discussed in the review of the literature. Since the HSB data contained more than 600 variables, the investigator reduced the number of variables to those included in the table (See Table 3.1 for details). It is important to emphasize that the inclusion of these independent variables was empirically based on their correlations with the variables related to school climate, context and composition rather than for any other theoretical
considerations.

### Table 3.1

#### INDEPENDENT VARIABLES

<table>
<thead>
<tr>
<th>CLIMATE</th>
<th>CONTEXT</th>
<th>COMPOSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability Grouping</td>
<td>Student/Teacher Ratio</td>
<td>Racial Compos.</td>
</tr>
<tr>
<td>Competency Test</td>
<td>Student/Staff Ratio</td>
<td>% of students</td>
</tr>
<tr>
<td>ESL Program</td>
<td>Years of Experience</td>
<td>&quot;disadvant.&quot;</td>
</tr>
<tr>
<td>Bilingual Program</td>
<td>Teacher Stability</td>
<td>&quot;attend.colleg&quot;</td>
</tr>
<tr>
<td>Absenteeism (Teachers &amp; Students)</td>
<td>Degree Earned</td>
<td>&quot;not in coll.&quot;</td>
</tr>
<tr>
<td>Disruptive Behavior</td>
<td># hours/homework</td>
<td>&quot;drop-outs&quot;</td>
</tr>
<tr>
<td>Student's Priorities</td>
<td>Public vs.Private</td>
<td>College Plans</td>
</tr>
<tr>
<td>Teacher's Interest</td>
<td>School assigning</td>
<td>Highest School-wanted</td>
</tr>
<tr>
<td>Parental Interest</td>
<td>homework(yes/no)</td>
<td></td>
</tr>
</tbody>
</table>

#### SCHOOL CLIMATE INDEPENDENT VARIABLES

The following independent variables were included in the analysis classified under the school climate construct. A large portion of these variables, coded as SBO, were found in the school file tape. Principals of all surveyed schools (988) were asked to answer questions pertaining to the structure, organization and curriculum of each participating school. The following variables were based on a yes, no, or none category.

- **SBO 19** 10th grade English class ability grouped.
- **SBO 20** 12th grade English class ability grouped.
- **SBO 23** Minimum competency test required to graduate (yes, no and don't know category)

The following variables were included in a yes and no category:

- **SBO 242** Minimum competency test in 10th grade
SBO 29BAY ESL not Offered
SBO 29BBY Mother Tongue not offered
SBO 29AJ Bilingual Program

(offered/ not offered)

The independent variable labeled as "Disruptive Behavior" was measured as a combination of the following variables:

SBO 56A Student absenteeism
SBO 56B Cutting class
SBO 56C Parents lack of interest in student progress
SBO 56E Teacher absenteeism
SBO 56F Teacher lack of commitment & motivation
SBO 56H Conflicts between student and teachers

All the above variables were classified on a scale of serious, moderate, minor or not at all categories by the respondents as scales already built into the questionnaires.

The following independent variables were obtained from the student file. These variables were measured for both sophomores and senior cohorts. The scale used included not, some, and very important categories, in the same fashion that the scales were included in the questionnaires.

BBO 57A Importance success in my work (work orientation)
BBO 57B Importance of family life (family orientation)
BBO 57J Importance of correction social inequalities

(humanitarian)

The final set of variables was answered by school principals in reference to their respective schools. The answers were categorized
in a services, moderate, minor or not at all scale.

SBO 56F Teachers lack of commitment or motivation
SBO 56E Teacher absenteeism
SBO 56C Parents lack of interest in student progress
SBO 56D Parents lack of interest in school matters

SCHOOL CONTEXT INDEPENDENT VARIABLES

The school context independent variables examined are limited to those variables that met the original criteria of the context definition. The "total high school membership" consisted of the number of students in attendance. The "specialization of school" variable included general high schools, vocational high schools, educational handicap and an additional "other" category. The "total time in minutes" variable was measured by a combination of these variables: length of school year (SBO05), length of class periods (SBO06) and the number of periods in a day (SBO07). All context variables measuring ratios were categorized by ratios. These included the following:

- CNSLR Number of counselors to students ratio
- VLNTR Number of volunteer staff to students ratio
- SPPRTS Number of support staff to student ratio

The number of context variables included and measured by percentages were:

- SBOY0 % of Professional Female Staff
- SBO42 % of Teachers with MA or Ph.D.
- SBO44 % of Teachers absent on average day
- SBO45 % of Teachers at school with 10 yrs or more
SB043  % of Teachers who left school not due to death or retirement

The variable for income was measured by the amount of dollars that an individual with a bachelor's degree entering for the first time to the school system would earn in the salary scale. This category ranged from an initial 400 dollars to a maximum of $24,785 dollars per year.

The independent variable "PBLPRV" separated students who attended public schools and those that attended private schools. Trends in the recent literature of HSB, (Coleman et al., 1982, Murnane, 1981), gave an edge to private school students over those in private schools with respect to achievement.

Trends stemming from "Time on Task", (Bloom, 1974), (Rosenshine & Berliner 1978), prompted the inclusion of the homework variables. The "Homework 1" variable refers to the question of whether assignments are given by the school. Both senior and sophomore cohorts answered the question on a yes or no scale. The "Homework 2" variable measures in weekly hours the amount of line that both senior and sophomore cohorts spend doing homework.

SCHOOL COMPOSITION VARIABLES

The school composition variables were obtained by the questionnaires provided by the school and student file. In general, school composition variables were based on measures of income, education, educational aspirations and the percentage of ethnic background and other measures often associated with parental education and income. Eleven variables obtained by surveying the
schools, as answered by the respective principals, provided information based on percentages for the following variables:

- SBO0095S - Percentage of white students (racial composition)
- SBO0093S - Percentage of Hispanic students
- SB011 - Percentage of 78-79 class now in college
- SB012 - Percentage of 78-79 class in non-college education
- SB014 - Percentage of drop-out students
- SB015 - Percentage of students bused for racial balance
- SB017BE - Percentage of 12th grade in academic program
- SB017BY - Percentage of 10th grade in academic program
- SB021 - Percentage of 10th grade taking remedial reading
- SB022 - Percentage of 10th grade taking remedial math
- SB037 - Percentage of class-disadvantaged students

The rest of the school composition variables were obtained through the information provided by the student file. Both senior and sophomore cohorts provided this information. The variables included are:

- CLLPLS - College plans (yes - no)
- BBO65 - Schooling you think you'll get?
  (less than high school graduation - Ph.D.)
- BBO39 - Father's Education
  (less than high school graduation - Ph.D.)
BB042 - Mother's Education
(less than high school graduation - Ph.D.)

BB101 - Family Income by sevenths
(6,999 or less - 38,000 or more)

BB067 - Lowest schooling student satisfied with
(less than high school graduation - Ph.D.)

At the onset of the study, additional variables that measured father's and mother's job prestige and the job and income aspiration's of the student were also included. Due to the great number of missing values, these variables were omitted in the final analysis. Nevertheless, a correlational matrix, done by the writer as a separate analysis, showed strong associations with other of the final variables included under the school composition construct.

DEPENDENT VARIABLES

The tests used for the HSB data, determined as dependent variables, were tests in Vocabulary, Reading and Mathematics. These same tests had been previously used in the National Longitudinal Survey (NLS), 1972. In addition, a field test of shorter versions of these tests were administered in the Spring of 1979. There were a total of 1,200 10th graders and 1,125 12th graders.

COGNITIVE TESTS of HSB

Educational Testing Service was awarded the contract to design the test batteries for HSB analysis. The test items show that the reliabilities met conventional standards and the difficulty levels and timing of each of the tests appeared to be appropriate (Heyns & Hilton, 1982). Examination of the distribution of scores for each test
indicates that the scores are not skewed to either end of their scales. The reliabilities are also consistent among students attending public, Catholic and other private schools. Validity was measured by relating the number of correct responses to the number of courses taken, both in English and Mathematics (Educational Testing Service, 1980).

Vocabulary test - The tests administered to both sophomore and senior cohorts, in the area of Vocabulary, consisted of a synonym test. The reliability of the Field test for sophomores was .792 and .765 for seniors. The time allotment was considered adequate, although all tests administered to sophomores were designed to be easier and to have a wider range of difficulty levels. For the HSB 1980 base year, the sophomore test consisted of 21 items and was the same as the Field test. Seniors took a vocabulary test consisting of two parts, one was the same as the Field test, the second was broader and had 12 additional items (Danbon et al., 1978).

Reading test - The reading test administered to both sophomores and seniors consisted of 100-200 word passages. The reading passages were followed by several related questions concerning a variety of reading skills (analysis, interpretation) but mainly focusing on comprehension. Both tests had 20 items for those taking it in 1980 base year. The reliability for those that took the Field test was .793 for sophomores and .765 seniors. The time was considered adequate. Reading correlated .648 with Vocabulary for seniors and .735 for sophomores (Danbon et al., 1978).

Mathematics test - The mathematics test consisted of
quantitative comparisons in which the student indicate which of two quantities was greater, or asserted their equality. The reliability coefficients for those sophomores that took the Field-test was .784 for sophomores and .838 for seniors. The mathematics test for sophomores intercorrelated with Vocabulary .642 and .649 with Reading. For seniors Math intercorrelated .553 with Vocabulary and .642 with Reading. On the whole, the intercorrelations suggest that the abilities measured by the above tests are not sharply differentiated (Danbon et al., 1978).

On the whole, Field test results indicated that males show a noticeably higher mean score than females on Mathematics. Females scored somewhat higher in Vocabulary and Reading. The same pattern remained when the means for the 1979 Field test were compared with the NLS of 1972 (Educational Testing Service, 1980).

The writer does not recommend comparisons between senior and sophomore tests. Although a number of items are common in the tests given to both cohorts, the growth that might be related to both groups is not the same. The growth rate between sophomores and seniors is two years. The growth rate for sophomores is difficult to assess since we lack a base line for such comparison. A number of authors have criticized the tests used on the basis that they do not cover subject matter that is explicitly part of the high school curriculum. The mathematics part, specifically, is rather elementary involving basic arithmetic operations, fractions and only a few hints of algebra and geometry (Heyns & Hilton, 1982).
In previous chapters, the investigator presented the basic problem, its theoretical basis, a review of the related literature, the method employed and the proposed hypotheses under investigation. The main focus of this chapter is to provide the reader with the descriptive analysis of the sample and the school variables under investigation. Each hypothesis is presented and further analysed with the use of a multiple regression model.

Results Related to Testing Null Hypothesis #1

Measures of school climate will not increase the academic achievement of Hispanic high school students.

This hypothesis representing the school climate variables was tested using a multiple regression technique. The following variables, already described, were included in the regression:

1. SBO 19 10th grade English class ability grouped
2. SBO 20 12th grade English class ability grouped
3. SBO 23 Minimum Competency test required to graduate
4. SBO 42 Minimum Competency test in 10th grade.
5. SBO 29BBY ESL not offered
6. SBO 29BBY Bilingual Program
7. SBO 56A Student Absenteeism
8. SBO 56B Cutting Class
(9) SBO 56C  Parents lack of interest in student progress  
(10) SBO 56D  Parents lack of interest in school matters  
(11) SBO 56E  Teacher Absenteeism  
(12) SBO 56F  Teacher lack of commitment & motivation  
(13) SBO 56H  Conflicts between student & teachers  
(14) BBO 57A  Importance success in my work  
(15) BBO 57B  Importance of family life  
(16) BBO 57J  Importance of correcting social inequalities  
(17) SBO 56F  Teachers lack of commitment & motivation  
(18) SBO 56E  Teacher absenteeism  
(19) SBO 56C  Parents lack of interest in student progress  
(20) DISRP  Disruptive behavior  
(21) SEX  Sex ( male (1) Female (2) )  

All the above school climate variables were obtained from both sophomore and senior questionnaires. All variables also measured the three primary sources of student socialization, the home (parents), the school and the classroom.

A standard stepwise regression procedure was performed by determining an entry level of .15 significance into the model. The level of significance for testing the hypothesis was set at .05. The hypothesis was also tested separately for sophomores and seniors. The analysis will be presented separately also, first sophomores and secondly, seniors.

The standard stepwise regression consists of a series of tests performed at each step to determine the contribution of each predictor already in the equation if it were to enter last.
Therefore, predictors that had been considered as "good" may lose their usefulness as they are removed from the equation. Stepwise then starts with a single predictor variable that yields the highest correlation coefficient with a criterion measure and then adds successive predictors until a statistically significant increment to the amount of variance is accounted for in the criterion variable.

Subsequent analysis permitted the researcher to interpret the relative importance of each independent variables to the prediction of the dependent variable, by way of the magnitudes of the weights associated with the predictors. A common standard scale score is used for all variables with a mean of zero and a standard deviation of one. The multiple correlation coefficient $R^2$ is used to indicate the degree of association of predicted scores and the proportion of variance in the criterion measure as determined by the square of this quantity ($R^2$). When standard scores are used the multiple standard error of estimate, $1-R^2$, provides an indication of the margin of error. The higher the value of $R^2$, the lower the error of prediction.

Of the original 21 variables used in the regression, a total of 6 independent variables was entered in the regression with significant levels in predicting the scores of the three dependent variables (vocabulary, reading, and mathematics):

1) Parents lack of interest in student progress
2) Bilingual Program
3) Importance success in my work
4) Teacher Absenteeism
5) Sex variable

6) Disruptive Behavior

Table 4.1 includes the four independent variables that met the test of significance with vocabulary as the dependent variable. Thus, the null hypothesis was rejected, whereas the variable, parents lack of interest in student progress, accounted for 5.2 percent of the variance for vocabulary. An additional 1.3 percent of the variance was accounted for by the bilingual program variable. The important success in my work variable increased the variance by 1.2 percent and an additional .7 percent by the teacher absenteeism variable. All four variables accounted for a total of 8.4 percent of the variance. All variables, met the test of significance level designated at .05.

Table 4.1

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Voc Stand.</th>
<th>B-Value</th>
<th>Stand. Error</th>
<th>P-Value</th>
</tr>
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<tr>
<td>1</td>
<td>Parents (lack of interest in student progress)</td>
<td>.052</td>
<td>57.45</td>
<td>.18</td>
<td>.16</td>
<td>.0001</td>
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</tr>
</tbody>
</table>
Upon examining the beta weights of these four independent variables, the first three were positive, thus, parents lack of interest in student progress, bilingual program not offered and importance success in my work were associated with increases in the dependent variable. The teacher absenteeism weight was negative; therefore, this variable was inversely related to the dependent variable.

Table 4.12 includes the four independent variables that met the test of significance with Reading Comprehension as the dependent variable. In a similar fashion the null hypothesis was rejected, whereas the variables that remained in the equation included two additional independent variables that had not met the test of significance with vocabulary as a dependent variable. These were sex and disruptive behavior.

<table>
<thead>
<tr>
<th></th>
<th>Bilingual Program not offered</th>
<th>Importance Success in my work</th>
<th>Teacher Absenteeism</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0.065 36.78</td>
<td>0.12 0.27 0.0001</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>0.077 28.92</td>
<td>0.11 0.28 0.0003</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>0.084 23.98</td>
<td>-0.09 0.18 0.0036</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.12
School Climate Variables

n=1044 (Sophomores)

<table>
<thead>
<tr>
<th>Step Entered</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>B-Value</th>
<th>Stand. Error For B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Parents</td>
<td>.048</td>
<td>53.37</td>
<td>.12</td>
<td>.18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Importance</td>
<td>.061</td>
<td>33.85</td>
<td>.13</td>
<td>.24</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sex</td>
<td>.067</td>
<td>25.17</td>
<td>-.09</td>
<td>.20</td>
</tr>
<tr>
<td>4</td>
<td>Disruptive Behavior</td>
<td>.074</td>
<td>21.01</td>
<td>.12</td>
<td>.05</td>
</tr>
</tbody>
</table>

The variable, parents lack of interest in student progress, accounted for 4.8 percent of the variance with an additional 1.3 percent added by importance success in my work variable. An additional .6 percent was accounted for the Sex variable and .7 percent by the disruptive behavior variable. The previous variables that met the test of significance, bilingual program and teacher absenteeism, were not included in this equation.
The beta weights indicated that 3 variables had positive weights, and the Sex variable was negative. Thus, sophomore students whose principals indicated that when both variables, parents lack of interest in student progress and disruptive behavior variables increased, then they were inversely related to the reading comprehension test. In a similar fashion, the success in my work variable was positively related to increases in the dependent variable. The negative weight in the Sex variable shows that female test scores were inversely related.

Table 4.13 indicates the variables that met the test of significance with mathematics as the dependent variable. Consequently, parents lack of interest in student progress accounted for 4.6 percent of the variance with an incremented value of 1.1 percent by the Sex variable. An additional 1 percent was added to the variance by the importance success in my work and another 1 percent by the bilingual program variable.

Table 4.13

---

School Climate Variables

n=1044 (Sophomores)

<table>
<thead>
<tr>
<th>Step Entered</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Math B-Value</th>
<th>Stand.</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Parents</td>
<td>.046</td>
<td>50.51</td>
<td>.16</td>
<td>.20</td>
<td>.0001</td>
<td></td>
</tr>
</tbody>
</table>
interest in student progress

2 Sex .057 31.53 -.12 .30 .0001

3 Importance .067 25.15 .11 .35 .0007

success in my work

4 Bilingual .077 21.73 .11 .33 .0011

Program

The beta weights were all positive except for the Sex variable. These indicate that decreases in sophomore Hispanic students scores were related to lack of interest by parents, absence of bilingual programs and less importance of success in the students work. The Sex variable indicated that female test scores were inversely related. A similar observation was made with reading comprehension as a criterion variable.

In general, the parents lack of interest in student progress variable accounted for much of the variance in each of the dependent variables examined. As a whole, the variables of sex, importance success in my work, and bilingual program met the test of significance although their incremental value to the variance was minor. Two additional variables, teacher absenteeism and disruptive
behavior did not meet the test of significance in all the dependent variables. Therefore, the four climate independent variables that were consistently observed with the criterion variables were: (1) parents' lack of interest in student progress, (2) importance success in my work, (3) bilingual program and (4) sex when examining Hispanic sophomores of limited English speaking ability.

The above variables discussed and included under the school climate construct were also tested with Hispanic seniors. The sample is slightly smaller, 800 students, since only all those individuals who answered the questions measuring the school climate variables were left in the final analysis. These also represented the sample for both the school context and composition variables; therefore, the reader is informed that the same cohorts were used consistently to test all the independent variables examined in this investigation.

In a similar fashion, of all the original 21 independent variables used in the regression for the senior cohorts, a total of 7 independent variables (climate) were entered in the regression with significant levels in predicting the scores of the three dependent variables (vocabulary, reading, and mathematics):

1) Parents Lack of Interest in School Matters
2) Bilingual Program
3) Importance Success in My Work
4) Teacher Absenteeism
5) Sex
6) Importance Correcting Inequalities
7) 10th-grade English Class Ability Grouped
This group of variables represents the same set of variables found in the analysis for the sophomores cohorts except for the last two variables, importance correcting inequalities and 10th-grade English-class ability grouped. Also, whereas lack of interest in student progress was significant for sophomores, lack of interest in school matters was significant for seniors.

Table 4.14 shows the number of variables that met the test of significance among seniors and with vocabulary test as the dependent variable. Thus, the null hypothesis was also rejected whereas the variable, bilingual program, accounted for 5.9 percent of the variance for vocabulary. An incremental value of 1.8 percent was added by parents lack of interest in school matters and .8 percent by the importance of correcting inequalities variables. The tenth grade ability grouped variable added only .7 percent to the variance. All four variables accounted for 9.2 percent of the variance. All the above variables met the .05 significance test.

Table 4.14

<table>
<thead>
<tr>
<th>School Climate Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=800 (Seniors)</td>
</tr>
<tr>
<td>Step Variable R F-Value Voc B-Value Stand. P-Value</td>
</tr>
<tr>
<td>Entered                 Stand. Error For B</td>
</tr>
<tr>
<td>---                       ---             ---</td>
</tr>
<tr>
<td>1 Bilingual .059 50.56 .17 .24 .0001</td>
</tr>
</tbody>
</table>
Further analysis indicates positive beta weights for the variables bilingual program and parents lack of interest in school matters and negative beta weights for importance correcting inequalities and 10th grade ability grouping variables. Therefore, Hispanic senior students whose principals indicated not offering bilingual programs, that parents lack of interest in school matters was not a seniors problem and whose tenth grade english classes had been grouped, were positively related to vocabulary. Seniors who indicated that correcting inequalities was very important showed a negative weight. Thus, for seniors whose concern was with correcting social inequalities, this variable was inversely related to vocabulary. This, in contrast to sophomores, seems to indicate that those with humanitarian orientations, rather than concerned with
success of their work, had scores inversely related to vocabulary.

When the climate variables were tested with Reading comprehension as the dependent variable, the disruptive behavior accounted for 5.1 percent of the variance with an additional 1.8 percent increment by the importance success in my work variable. An additional 1.7 percent was accounted by importance correcting inequalities variable and 1.3 percent by the bilingual program variable. The Sex variable added .9 percent whereas the five independent variables accounted for a total of 10.8 percent of the variance.

Table 4.15

---

School Climate Variables

n=800 (Seniors)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Read B-Value</th>
<th>Stand Error</th>
<th>Stand</th>
<th>P-Value For B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Disruptive Behavior</td>
<td>.051</td>
<td>43.01</td>
<td>.14</td>
<td>.05</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Importance Success in my work</td>
<td>.069</td>
<td>29.76</td>
<td>.09</td>
<td>.39</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Importance Correcting Inequalities</td>
<td>.086</td>
<td>25.24</td>
<td>-.12</td>
<td>.20</td>
<td>.0003</td>
<td></td>
</tr>
</tbody>
</table>
Examination of the beta weights in Table 4.15 indicates that disruptive behavior, importance of success in my work and bilingual program variables were all positive. The importance in correcting inequalities and the Sex variable were negative. Thus, senior students who indicated that their work was very important and whose schools had less disruptive behavior and a lack of a bilingual program as informed by principals, scores increased in the reading comprehension test. The negative weights in correcting inequalities variable and female test scores were inversely related.

When the mathematics test was used as the criterion variable, the following climate variables met the test of significance. The parents' lack of interest in school matters variable accounted for 4.6 percent of the variance followed by an additional 2.6 percent by the sex variable. The bilingual program and importance success in my work incremented 1.6 and .9 percent respectively.

Table 4.16

<table>
<thead>
<tr>
<th>Step Variable</th>
<th>R</th>
<th>F-Value Math</th>
<th>B-Value</th>
<th>Stand. P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entered</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The beta weights in table 4.16 indicate positive weights for parents lack of interest in school matters, bilingual program and importance success in my work variable. The Sex variable, as previously indicated, shows a consistent negative weight. Thus, senior students scores from schools where parents lack of interest in school matters was high and indicated an absence of bilingual programs, these variables were inversely related to the mathematics test. As students indicated a stronger work orientation, this variable was then associated with increases in the dependent variable. Male Hispanic students had an edge over female students with this dependent variable.

In a similar fashion, the climate variables that consistently met the test of significance with the sophomore cohorts were also observed among the senior cohorts. Thus, the (1) bilingual program,
(2) parents lack of interest in school matters, (3) importance of correcting inequalities, (4) importance success in my work and (5) the sex variables met the test of significance for both groups. Parents lack of interest in school matters met the test of significance among the senior but not among the sophomore cohorts. Similarly, parents lack of interest in students progress met the test of significance among the sophomore but not among the senior cohorts.

SCHOOL CONTEXT VARIABLES

In a similar fashion, the hypothesis representing school context variables was also tested using a multiple regression technique. The following hypothesis was tested:

Results Related to Testing Hypothesis #2

Measures of school context will not increase the academic achievement of Hispanic high school students.

The variables, already described in the previous chapter, that were included in the regression were:

1) SB 002A - School Size
2) SB 003 - Specialization of School
3) TOTTM - Total Time in Minutes
4) CNSLR - Number of Counselors to Student Ratio
5) VLNTR - Number of Volunteer Staff to Student Ratio
6) SPPRTS - % of Professional Females Staff
8) SB042 - % of Teachers with MA or Ph.D.
9) SB044 - % of Teachers Absent on Average Day
10) SB045 - % of Teachers at School with 10 yrs or More of Experience
A standard stepwise regression procedure was performed with all the above thirteen variables. The entry level was selected at .15. The level of significance was set at .05.

Of the original 13 variables, a total of 6 were observed in the regression with significant levels in predicting the scores of the three dependent variables.

1) Homework 2
2) Public vs Private
3) Sex
4) % Teachers left not due to death or retirement
5) Total minutes in class
6) % Teachers absent on average day

Among sophomore Hispanic students, the climate variables that met the test of significance, with vocabulary as the criterion variable, included the Homework 2 variable, accounting for 8 percent of the variance and the Public vs Private variable incrementing 3.6 percent. An additional 1.6, 1, and .6 percent were accounted by the Sex, % of teachers who left not due to death or retirement variables, respectively. Table 4.21 indicates the variables that met the test of significance, thus rejecting the null hypothesis.

Table 4.21
School Context Variables

n=1044 (Sophomores)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Voc B-Value</th>
<th>Stand. Error</th>
<th>Stand. Error For B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Homework</td>
<td>.080</td>
<td>90.87</td>
<td>.25</td>
<td>.09</td>
<td>.0001</td>
</tr>
<tr>
<td>2</td>
<td>Public vs Private</td>
<td>.116</td>
<td>68.85</td>
<td>.21</td>
<td>.30</td>
<td>.0001</td>
</tr>
<tr>
<td>3</td>
<td>Sex</td>
<td>.132</td>
<td>53.12</td>
<td>-.13</td>
<td>.24</td>
<td>.0001</td>
</tr>
<tr>
<td>4</td>
<td>% Teachers</td>
<td>.142</td>
<td>43.19</td>
<td>-.09</td>
<td>.01</td>
<td>.0009</td>
</tr>
</tbody>
</table>

Upon examining the beta weights, the table indicates that the Homework 2 and Public vs. Private variables had positive weights. Thus indicating that as the number hours increase in doing homework so do the scores in vocabulary. Students attending private schools had an edge over those in public schools. The negative weights for the Sex variable also gives an edge to male Hispanic students. The negative weights for both the number of teachers left not due to death or retirement and total of minutes in class indicate that as the percentage of these increases the number of right answers in
vocabulary decreases.

Table 4.22 indicates the number of variables that met the test of significance with reading comprehension as a criterion variable. The Homework 2 variable accounted for 7.1 percent of the variance with an additional 2.4 percent by the Public vs. Private variable. The Sex variable incremented only 1.6 percent to 11.1 percent of the total variance.

Table 4.22

<table>
<thead>
<tr>
<th>School Context Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=1044 (Sophomores)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Read B-Value</th>
<th>Stand. P-Value</th>
<th>For B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Homework</td>
<td>.071</td>
<td>80.78</td>
<td>.25</td>
<td>.07</td>
<td>.0001</td>
</tr>
<tr>
<td>2</td>
<td>Public vs</td>
<td>.095</td>
<td>55.09</td>
<td>.16</td>
<td>.25</td>
<td>.0001</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sex</td>
<td>.111</td>
<td>43.42</td>
<td>-.13</td>
<td>.20</td>
<td>.0001</td>
</tr>
</tbody>
</table>

The beta weights for both the Homework 2 and Public vs. Private variables were positive and negative for the Sex variable, respectively. Thus indicating that attendance in private schools and increases in hours of doing homework are associated with increases in the dependent variable.
The variables that met the test of significance with mathematics as the criterion variable are found in table 4.23. The Homework 2 variable accounted for 8.9 percent of the variance with an additional 2.1 percent by the Sex variable. The Public vs. Private, % of teachers left not due to death or retirement, % of teachers absent on an average day and the total minutes in class variables added 1.6, 1.1, .6 and .2, percent respectively.

Table 4.23

<table>
<thead>
<tr>
<th>School Context Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=1044 (Sophomores)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Math B-Value</th>
<th>Stand. Error</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Homework</td>
<td>.089</td>
<td>102.40</td>
<td>.29</td>
<td>.11</td>
<td>.0001</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sex</td>
<td>.111</td>
<td>65.36</td>
<td>-.16</td>
<td>.29</td>
<td>.0001</td>
</tr>
<tr>
<td>3</td>
<td>Public vs Private</td>
<td>.127</td>
<td>50.75</td>
<td>.11</td>
<td>.40</td>
<td>.0004</td>
</tr>
<tr>
<td>4</td>
<td>% Teachers left not due to death or retirement</td>
<td>.138</td>
<td>41.63</td>
<td>-.10</td>
<td>.02</td>
<td>.0003</td>
</tr>
<tr>
<td>5</td>
<td>% Teachers absent on</td>
<td>.144</td>
<td>35.03</td>
<td>-.09</td>
<td>.05</td>
<td>.0023</td>
</tr>
</tbody>
</table>

Table 4.23
The beta weights indicate positive values for the Homework 2 and Public vs. Private variables. Thus, increases in homework hours are also associated with increases in the mathematics scores. Students attendance in private schools was also associated with increases in the dependent variable. The Sex, % of teachers absence on an average day and total minutes in class variables, had negative values. Therefore, increases in ratios for teachers leaving schools, teachers absences and increases of time in classes, were all inversely related to the dependent variable. Hispanic males had an edge over Hispanic female scores.

Overall, the Homework 2 variable accounted for an average of 8 percent of the total variance among all three criterion variables. The Sex and Public vs. Private variables also met the test of significance with all the dependent variables, but only added a small percentage to the total variance.

SENIORS

The same context variables studied for the sophomore cohorts, were also analyzed for the senior cohorts. Of the original 14 variables, only four were observed in the regression that met the test of significance in predicting the scores of the three dependent variables. These included:

1) Homework 2
2) Public vs Private

3) Sex

4) % of teachers with 10 years or more of experience

All of the above variables were also observed in the analysis of the sophomore cohorts.

Table 4.24 indicates the variables that met the test of significance with vocabulary as the criterion variable. The Public vs. Private variable accounted for 14 percent of the variance with an additional 1.9 percent by the % of teachers with 10 years of experience and .9 percent by the Homework 2 variables.

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Voc B-Value</th>
<th>Stand.</th>
<th>Error For B</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Public</td>
<td>.140</td>
<td>130.68</td>
<td>.37</td>
<td>.26</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>vs Private</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>% Teachers</td>
<td>.159</td>
<td>75.73</td>
<td>.15</td>
<td>.00</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>with 10 years or</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>more of experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Homework 2</td>
<td>.168</td>
<td>53.88</td>
<td>.10</td>
<td>.07</td>
<td>.0032</td>
<td></td>
</tr>
</tbody>
</table>
The beta weights for the above variables were all positive, thus indicating that students participation in private schools is associated with increases in the number of right answers in the vocabulary test. The same is true for an increase of teacher's years of experience and increases in the number of hours spent in homework.

A similar analysis was made with the above variables and reading comprehension as the criterion variable. The Public vs. Private variable, shown in Table 4.25, accounted for 9.9 percent of the total variance. The Homework 2 variable incremented an additional 3.6 percent. The Sex and the % of teachers with 10 or more years of experience variables added 1.6 and .8 respectively to 15.9 percent of the total variance.

Table 4.25

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Read Stand.</th>
<th>B-Value Stand.</th>
<th>Error</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Public vs. Private</td>
<td>.099</td>
<td>87.91</td>
<td>.27</td>
<td>.33</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Homework 2</td>
<td>.135</td>
<td>62.37</td>
<td>.20</td>
<td>.10</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sex</td>
<td>.151</td>
<td>47.22</td>
<td>-.12</td>
<td>.26</td>
<td>.0002</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>% Teachers</td>
<td>.159</td>
<td>37.60</td>
<td>.10</td>
<td>.00</td>
<td>.0061</td>
<td></td>
</tr>
</tbody>
</table>
with 10
or more
years of
experience

The beta weights for Public vs. Private, Homework 2, and % of teachers with 10 years or more of experience variables are all positive, thus indicating that increases in the criterion variables were associated with students attending private schools, with increases in the number of hours doing homework and with larger ratios of teachers with 10 or more years of experience. The Sex variable was negative, thus indicating an advantage by male Hispanics.

Table 4.26 indicates all the variables that met the test of significance. When mathematics was used as the criterion variable, the Homework 2 variable, accounted for 10.1 percent of the variance and an additional 4.1 percent by the Sex variable. Increments of 4.3 and .5 percent were added by the Public vs. Private and % of teachers with 10 or more years of experience variables to a total variance of 19 percent.

Table 4.26

<table>
<thead>
<tr>
<th>School Context Variables</th>
<th>n=800 (Seniors)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step Variables</td>
<td>R</td>
</tr>
</tbody>
</table>
The beta weights indicate positive values for the Homework 2, Public vs. Private and % of teachers with 10 or more years of experience variables. The Sex variable had a negative value. Therefore, increases in the number of hours doing homework and years of teaching experience are associated with increases in the criterion variable. Male Hispanics and attendance in private schools is also associated with increases in the mathematic test scores.

Overall, the independent variables, consistently observed in the tests of significance with all the dependent variables included the Homework 2, Public vs. Private and Sex variables. These same variables met the test of significance for both sophomore and senior cohorts. Of all the above variables, hours spent in doing homework accounted for most of the variance among the school context variables.
SCHOOL COMPOSITION VARIABLES

A multiple regression technique was used on hypothesis representing the school composition variables. The following hypothesis was tested:

Results Related to Testing Hypothesis #3

School composition will not increase the academic achievement of Hispanic high school students. The variables already described in Chapter III that were included in the regression:

1) SB0095S  - Percentage of white students
2) SB0093S  - Percentage of Hispanic students
3) SB011    - Percentage of 78-79 class now in college
4) SB012    - Percentage of 78-79 graduating class in non-college education
5) SB014    - Percentage of drop-out students
6) SB015    - Percentage of students based for racial balance
7) SB017BE  - Percentage of 12th grade in academic program
8) SB017BY  - Percentage of 10th grade in academic program
9) SB021    - Percentage of 10th grade taking remedial reading
10) SB022   - Percentage of 10th grade taking remedial math
11) SB037   - Percentage of class-disadvantaged students
12) CLLPLS  - College plans (yes-no)
13) BB065   - Amount of schooling you think you'll get
14) BB039   - Father's education
Of the original 18 variables described above, a total of seven were observed in the regression. Of those seven, five were consistently observed with both sophomore and senior cohorts. The variables that met the test of significance among sophomores with the three criterion variables, included:

1) Schooling you think you'll get
2) Percentage of 78-79 class now in college
3) Percentage of school-disadvantaged students
4) Sex variable
5) Family income by sevenths
6) Percentage of white students
7) Percentage of Hispanic students

The variables that met the test of significance, thus rejecting the null hypothesis, with vocabulary as the criterion variable, are shown in table 4.31. The schooling you think you'll get variable accounts for 13.9 percent of the variance with an increase of 4.1 percent by the percentage of disadvantaged students variables. The percentage of 78-79 graduating class attending regular college, family income by sevenths and the Sex variables incremented 2.2, .9 and .9 percent, respectively, to 2.2 of the total variance.
### Table 4.31

#### School Composition Variables

$n=1044$ (Sophomores)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>$R$</th>
<th>F-Value</th>
<th>Voc</th>
<th>B-Value</th>
<th>Stand. Error</th>
<th>Stand. P-Value</th>
<th>F-Value Stand. P-Value For B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Schooling</td>
<td>.139</td>
<td>168.67</td>
<td></td>
<td>.29</td>
<td>.04</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>you think you'll get</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>% Students</td>
<td>.180</td>
<td>114.73</td>
<td></td>
<td>-.14</td>
<td>.00</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>disadvantaged</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>% Students</td>
<td>.202</td>
<td>87.83</td>
<td></td>
<td>.15</td>
<td>.00</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>78-79</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>graduating class now</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>in regular college</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Family</td>
<td>.211</td>
<td>69.80</td>
<td></td>
<td>.10</td>
<td>.07</td>
<td>.0007</td>
<td></td>
</tr>
<tr>
<td></td>
<td>income (7ths)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Sex</td>
<td>.220</td>
<td>58.66</td>
<td></td>
<td>-.09</td>
<td>.22</td>
<td>.0008</td>
<td></td>
</tr>
</tbody>
</table>

The beta weights indicate positive values for the schooling you think you'll get, % of 78-79 students graduating class in regular...
college and family income variables. The weights for the Sex and percentage of disadvantaged students are negative. Thus, as students indicated a higher level of educational degree expected and as ratios of seniors attending college increases, so do the scores in the vocabulary test. The same was also true for increases in family income. Higher ratios of disadvantaged students in schools were inversely related to the vocabulary test scores. Hispanic males had an advantage over female Hispanic students in the vocabulary test.

Table 4.32 indicates the variables that met the test of significance with reading comprehension as the criterion variable. The schooling you think you'll get variable accounted for 13.3 percent at the variance followed by the percentage of 78-79 class in college variable with an additional 2.9 percent. The percentage of white students variable incremented 1.4 percent with smaller amounts of 1.1 and .4 percent by the Sex and percentage of Hispanic students variables. The five variables constituted a rejection of the null hypothesis and accounted for 19.1 percent of the total variance.

<table>
<thead>
<tr>
<th>Step Entered</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Read B-Value</th>
<th>Stand. P-Value</th>
<th>Stand. Error</th>
<th>For B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The beta weights indicated that the schooling you think you'll get, % of 78-79 class in college, % of white students and % of Hispanic students were all positive. Thus, as the ratios increased so did the number of right answers in reading comprehension. The Sex variable was inversely related, thus Hispanic males had an advantage over Hispanic females.

The variables that met the test of significance, thus rejecting the null hypothesis, with mathematics as the criterion variable, are included in table 4.33. The schooling you think you'll get variable accounted for 17 percent of the variance with smaller increments by the percentage of 78-79 graduating class now in college, 1.9 percent, 1.9 percent by the Sex variable, .8 percent by the percentage of white students variable. An additional 1.1 percent and .3 percent
were accounted, respectively, by the percentage of Hispanic students and family income variables.

Table 4.33

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Math B-Value</th>
<th>Stand. Error</th>
<th>For B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Schooling</td>
<td>.170</td>
<td>213.72</td>
<td>.36</td>
<td>.06</td>
<td>.0001</td>
</tr>
<tr>
<td>2</td>
<td>% 78-79</td>
<td>.189</td>
<td>121.91</td>
<td>.15</td>
<td>.00</td>
<td>.0001</td>
</tr>
<tr>
<td>3</td>
<td>Sex</td>
<td>.208</td>
<td>91.52</td>
<td>-.14</td>
<td>.28</td>
<td>.0001</td>
</tr>
<tr>
<td>4</td>
<td>% White</td>
<td>.216</td>
<td>71.63</td>
<td>.23</td>
<td>.00</td>
<td>.0001</td>
</tr>
<tr>
<td>5</td>
<td>% Hispanic</td>
<td>.227</td>
<td>60.98</td>
<td>.19</td>
<td>.00</td>
<td>.0002</td>
</tr>
<tr>
<td>6</td>
<td>Family</td>
<td>.230</td>
<td>51.84</td>
<td>.06</td>
<td>.08</td>
<td>.0255</td>
</tr>
</tbody>
</table>

You think you'll get graduating class now in college

students

students

income by
The beta weights indicate that the schooling you think you'll get, % 78-79 graduating class now in college, % of white students, % of Hispanic students and family income variables are all positive. Thus, as the ratios of school composition variables increase, so do the number of right answers in the math test. Once again, the Sex variable was inversely related; Hispanic males scores increased slightly over those of females.

SENIORS

The same composition variables used in the analysis of Hispanic sophomores were also used with the senior cohorts. Seven variables were observed in the regression that met the test of significance in predicting the scores of the three dependent variables. These are:

1) Schooling you think you'll get
2) % 78-79 graduating class now in college
3) % of disadvantaged students
4) Sex
5) Family-income by sevenths
6) % of students who drop out
7) Main activity after graduating from high school (work or school)

The first five variables were also consistently observed in the regression analysis of the sophomore cohorts. Overall, the schooling you think you'll get variable accounted for the greatest percentage
of variance for all dependent variables, among both sophomore and senior cohorts.

The variables that met the test of significance, thus rejecting the null hypothesis, with vocabulary as the criterion variable, are included in table 4.34. Whereas, the percentage of 78-79 graduating class now in college accounts for 15.6 percent of the total variance, the variables schooling you think you'll get and percentage of disadvantaged students incremented an additional 5.9 and 1.2 percent, respectively.

Table 4.34

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Voc</th>
<th>B-Value</th>
<th>Stand.</th>
<th>Error</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>% 78-79</td>
<td>.156</td>
<td>148.12</td>
<td>.26</td>
<td>.00</td>
<td>.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Schooling</td>
<td>.215</td>
<td>109.15</td>
<td>.26</td>
<td>.05</td>
<td>.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>% disadvantaged</td>
<td>.227</td>
<td>77.98</td>
<td>-.11</td>
<td>.00</td>
<td>.0004</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The beta weights indicate positive values for the 78-79 class now in college and the schooling you think you'll get variables. Thus, as the ratios for these variables increased so did the number of right answers in the vocabulary test. The percentage of disadvantaged students variable was inversely related to the number of right answers in the vocabulary test.

The variables that met the test of significance with reading test as a criterion variable are shown in table 4.35. The schooling you think you'll get variable accounts for 15.8 percent of the total variance. An additional 1.9, .5 and .4 percent were incremented by the % of 78-79 graduating class in college, % of disadvantaged students, sex and family income variables, respectively.

Table 4.35

School Composition Variables

n=800 (Seniors)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Read B-Value</th>
<th>Stand P-Value</th>
<th>Stand Error for B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Schooling</td>
<td>.158</td>
<td>150.12</td>
<td>.30</td>
<td>.06</td>
<td>.0001</td>
</tr>
</tbody>
</table>

you think
you'll get
<table>
<thead>
<tr>
<th></th>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>% 78-79 class in college</td>
<td>0.189</td>
<td>93.37</td>
<td>0.15</td>
<td>0.00</td>
</tr>
<tr>
<td>3</td>
<td>% disadvantaged</td>
<td>0.208</td>
<td>69.77</td>
<td>-0.11</td>
<td>0.00</td>
</tr>
<tr>
<td>4</td>
<td>Sex</td>
<td>0.213</td>
<td>53.94</td>
<td>-0.07</td>
<td>0.25</td>
</tr>
<tr>
<td>5</td>
<td>Family income</td>
<td>0.217</td>
<td>44.20</td>
<td>0.07</td>
<td>0.08</td>
</tr>
</tbody>
</table>

The beta weights for the schooling you think you'll get, % of 78-79 class in college and family income were all positive. Thus, as students indicated a higher level of expected education, larger ratios of graduating students attending college and higher levels of family income, all of these were associated with increases in the dependent variable. The sex and percentage of disadvantaged students variables had negative weights. Thus, these were inversely related to the number of right answers in the reading test.

The variables that met the test of significance with the mathematics test as a criterion variable are shown in table 4.36. The schooling you think you'll get variable accounts for 22.7 percent of the total variance. Additional increments of 1.9, 2.1, 1.1 and 0.8
percent were accounted by the % of drop outs, sex, family income and the main activity (work-school) variables, respectively.

Table 4.36

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Math B-Value</th>
<th>Stand. P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Schooling</td>
<td>.227</td>
<td>234.39</td>
<td>.36</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>you think</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>you'll get</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>% Drop outs</td>
<td>.256</td>
<td>137.56</td>
<td>-.15</td>
<td>.01</td>
</tr>
<tr>
<td>3</td>
<td>Sex</td>
<td>.277</td>
<td>101.67</td>
<td>-.15</td>
<td>.31</td>
</tr>
<tr>
<td>4</td>
<td>Family</td>
<td>.288</td>
<td>80.77</td>
<td>.12</td>
<td>.09</td>
</tr>
<tr>
<td>5</td>
<td>Work-School</td>
<td>.296</td>
<td>67.00</td>
<td>.11</td>
<td>.41</td>
</tr>
</tbody>
</table>

The beta weights in table 4.36 indicate positive values for the schooling you think you'll get, family income and work-school variables. Thus as students indicated an expected level of higher education, a preference for continuing school after graduation, and higher levels of income so did the number of right answers in the mathematics test increase. The % of drop-outs and the Sex variables
ANCILLARY RESULTS

In order to identify the regression model which best explains the greatest amount of variation with the three dependent variables, a final standard regression analysis was used with all the independent variables examined under each construct. The independent variables were entered into the equation in order of their contribution with each of the dependent variables. Thus, the final analysis included a regression with all possible dependent variables for both sophomore and senior cohorts.

SOPHOMORES

Table 4.37 indicates the variables that met the test of significance in the equation with vocabulary as the criterion variable. The schooling you think you’ll get variable accounted for a total of 13.9 percent of the total variance. The % of disadvantaged students variable incremented an additional 4.1 percent. The Homework 2, % of 78-79 graduating class in college, Sex, total minutes in class, 10th grade English-class ability grouped, family income and 12th grade class ability grouped augmented the variance of 2.3, 1.4, 1.3, 1, .7, .8 and .3 percent, respectively. Thus, the schooling you think you’ll get variable accounts for the greatest amount of variance.

Table 4.37
All Variables (Climate, Context & Composition)

n=1044 (Sophomores)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Voc</th>
<th>B-Value</th>
<th>Stand.</th>
<th>Error</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Schooling</td>
<td>.139</td>
<td>168.67</td>
<td></td>
<td>.26</td>
<td>.05</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>% of disadvantaged students</td>
<td>.180</td>
<td>114.73</td>
<td>-.15</td>
<td>.00</td>
<td>.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Homework 2</td>
<td>.203</td>
<td>88.42</td>
<td></td>
<td>.14</td>
<td>.09</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>% 78-79</td>
<td>.217</td>
<td>72.35</td>
<td></td>
<td>.14</td>
<td>.00</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Sex</td>
<td>.230</td>
<td>62.34</td>
<td>-.10</td>
<td>.22</td>
<td>.0001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Total min.</td>
<td>.240</td>
<td>54.62</td>
<td>-.11</td>
<td>.00</td>
<td>.0004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>10th grade</td>
<td>.247</td>
<td>48.71</td>
<td>.15</td>
<td>.32</td>
<td>.0002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Family</td>
<td>.255</td>
<td>44.36</td>
<td></td>
<td>.09</td>
<td>.07</td>
<td>.0009</td>
<td></td>
</tr>
</tbody>
</table>
income by 7ths

\[ \begin{array}{cccc}
9 & 12th grade & 0.258 & 39.99 \\
 & & -0.20 & 0.32 \\
 & & & 0.0465 \\
\end{array} \]

English-Class
ability grouped

The beta weights for the schooling you think you'll get, Homework 2, % of graduating class, 10th grade and 12th grade English-Class ability grouped and family income variables were all positive. The % of disadvantaged students, Sex and total minutes in class were negative and thus inversely related to the vocabulary test.

Table 4.38 indicates those variables that met the test of significance with reading comprehension as the criterion variable. The schooling you think you'll get variable accounted for 13.3 percent of the variance followed by an additional 2.9 percent by the % of 78-79 class now in college variable. The % of white students, Homework 2, Sex, disruptive behavior, % of Hispanic students and total minutes in class variables incremented 1.4, 1.3, .4, .3, .3 and .5 percent, respectively.

Table 4.38
All Variables (Climate, Context, & Composition)

n=1044 (Sophomores)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Read</th>
<th>B-Value</th>
<th>Stand. P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Schooling</td>
<td>.133</td>
<td>161.9</td>
<td>.27</td>
<td>.04</td>
<td>.0001</td>
</tr>
<tr>
<td></td>
<td>you think you'll get</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>% 78-79</td>
<td>.162</td>
<td>101.88</td>
<td>.15</td>
<td>.00</td>
<td>.0001</td>
</tr>
<tr>
<td></td>
<td>class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>in college</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>% White</td>
<td>.176</td>
<td>74.53</td>
<td>.20</td>
<td>.00</td>
<td>.0001</td>
</tr>
<tr>
<td></td>
<td>students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Homework 2</td>
<td>.189</td>
<td>60.71</td>
<td>.13</td>
<td>.08</td>
<td>.0001</td>
</tr>
<tr>
<td>5</td>
<td>Sex</td>
<td>.203</td>
<td>53.05</td>
<td>-.12</td>
<td>.19</td>
<td>.0001</td>
</tr>
<tr>
<td>6</td>
<td>Disruptive</td>
<td>.207</td>
<td>45.29</td>
<td>.06</td>
<td>.04</td>
<td>.0447</td>
</tr>
<tr>
<td></td>
<td>behavior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>% of Hisp</td>
<td>.210</td>
<td>39.57</td>
<td>.12</td>
<td>.00</td>
<td>.0147</td>
</tr>
<tr>
<td></td>
<td>students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Total min.</td>
<td>.215</td>
<td>35.47</td>
<td>-.07</td>
<td>.00</td>
<td>.0190</td>
</tr>
<tr>
<td></td>
<td>in class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The schooling you think you'll get, % of 78-79 class in college, % of white students, Homework 2, Disruptive Behavior, % of Hispanic students variables all had positive weights. Thus, increases in the
ratios of white and Hispanic students and senior graduates in college are associated with increases in the reading comprehension test. Similarly, as students indicated a higher expected level of schooling, and more hours spent in doing homework, so did the number of right answers in the reading comprehension test increase. As principals indicated less disruptive behavior in their respective schools, so did the number of right answers in reading comprehension increase. The Sex and total minutes in class variables had negative values and thus were inversely related to the reading comprehension test; so as the number of minutes in class increased the number of right answers decreased. Once again, Hispanic males had a slight advantage over Hispanic females.

Table 4.39 indicates all the variables that met the test of significance with mathematics as a criterion variable. The schooling you think you'll get variable accounted for 17 percent of the total variance. The Homework 2 and Sex variable added 2.6 and 2.1 percent, respectively. The % 78-79 class in college, total minutes in class, % teachers absent in average day, % teachers left school (not due to death or retirement), % of teachers with M.A. or Ph.D and percentage of white students incremented 1.6, .7, .7, .7, .4 and .5 percent, respectively, totaling 26.5 percent variance.

Table 4.39

All Variables (Climate, Context, & Composition)
n=1044 (Sophomores)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>B-Value</th>
<th>Stand.</th>
<th>Error</th>
<th>P-Value for B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Schooling</td>
<td>.170</td>
<td>213.72</td>
<td>.33</td>
<td>.06</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>you think</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Homework 2</td>
<td>.196</td>
<td>126.91</td>
<td>.16</td>
<td>.11</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sex</td>
<td>.217</td>
<td>96.40</td>
<td>-.16</td>
<td>.27</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>% 78-79</td>
<td>.233</td>
<td>78.93</td>
<td>.15</td>
<td>.00</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Total min.</td>
<td>.240</td>
<td>65.80</td>
<td>-.11</td>
<td>.00</td>
<td>.0002</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>% Teachers</td>
<td>.247</td>
<td>56.87</td>
<td>-.08</td>
<td>.05</td>
<td>.0048</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>% Teachers</td>
<td>.254</td>
<td>50.55</td>
<td>-.10</td>
<td>.01</td>
<td>.0008</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>% Teachers</td>
<td>.260</td>
<td>45.46</td>
<td>-.10</td>
<td>.00</td>
<td>.0009</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>% of White</td>
<td>.265</td>
<td>41.49</td>
<td>.08</td>
<td>.00</td>
<td>.0065</td>
<td></td>
</tr>
</tbody>
</table>

The beta weights indicate positive values for schooling you think you'll get, Homework 2, % 78-79 class in college, and % of
white students. Thus, increases in the dependent variable are associated with students who indicated higher levels of expected education, increases in the number of hours doing homework and increases in the ratio of white students and the number of seniors attending college. The Sex, total minutes in class, % of teachers absent on an average day, % teachers left (not due to death or retirement), % of teachers M.A. or Ph.D. degrees were inversely related to the dependent variable; therefore, increases in the number of teachers absent on average day, leaving the school, and possessing higher degrees were apparently associated with decreases in the dependent variable. In a similar fashion, increases in the number of minutes per class also had an inverse relationship. Once again, Hispanic males did slightly better than Hispanic females.

SENIORS

Table 4.40 indicates the set of variables that met the test of significance among seniors with vocabulary as a criterion variable. All variables under school context, climate and composition were included in the regression. The % of 78-79 class now in college accounts for 15.6 percent of the variance with an additional 5.9 percent by the schooling you think you'll get variable. The Public vs. Private, importance of correcting inequalities and percentage of teachers with more than 10 years of experience incremented 1.7, 1.4 and .9 percent, respectively.

Table 4.40
All Variables (Climate, Context & Composition)

n=800 (Seniors)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Voc</th>
<th>B-Value</th>
<th>Stand</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>% 78-79</td>
<td>.156</td>
<td>148.12</td>
<td></td>
<td>.16</td>
<td>.00</td>
<td>.0001</td>
</tr>
<tr>
<td></td>
<td>class in college</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Schooling</td>
<td>.215</td>
<td>109.12</td>
<td></td>
<td>.26</td>
<td>.05</td>
<td>.0001</td>
</tr>
<tr>
<td></td>
<td>you think you'll get</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Public vs. Private</td>
<td>.232</td>
<td>80.33</td>
<td></td>
<td>.21</td>
<td>.32</td>
<td>.0001</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Importance</td>
<td>.246</td>
<td>65.02</td>
<td></td>
<td>-.11</td>
<td>.14</td>
<td>.0002</td>
</tr>
<tr>
<td></td>
<td>correcting inequalities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>% Teachers</td>
<td>.255</td>
<td>54.50</td>
<td></td>
<td>.10</td>
<td>.00</td>
<td>.0020</td>
</tr>
<tr>
<td></td>
<td>with more</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>than 10 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The beta weights for the % of 78-79 class in college, schooling you think you'll get, Public vs. Private and % of teachers with more than 10 years of experience are all positive. Thus, increases in the
ratios of these variables are associated with increases in the dependent variable. Private school students had an advantage over public school students. The importance in correcting inequalities variable has a negative value. Thus as students indicated more concern with correcting inequalities, this particular variable became inversely related to the dependent variable.

The variables that met the test of significance with reading comprehension are included in table 4.41. The Schooling you think you'll get variable accounts for 15.8 percent of the total variance with an additional 4.3 percent by the Public vs. Private variable. The importance of correcting inequalities, % of disadvantaged students, Homework 2 and the Sex variables augmented the variance by 1.5, 1.1, .8 and .8 percent, respectively. The total variance for the above variables was 25.3 percent.

Table 4.41

---

All Variables (Climate, Context, & Composition)

n=800 (Seniors)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Read B-Value</th>
<th>Stand Error For B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Schooling</td>
<td>.158</td>
<td>150.12</td>
<td>.30</td>
<td>.06</td>
</tr>
</tbody>
</table>

you think

you'll get
2 Public vs Private
3 Importance correcting inequalities
4 % Disadvantaged students
5 Homework 2
6 Sex

The beta weights indicate positive values for the Schooling you think you'll get, Public vs. Private, and the Homework 2 variable, thus increases in these variables and attendance in private schools was positively related to the dependent variable. Importance of correcting inequalities, % of disadvantaged students and the Sex variables were inversely related. Thus, as students indicated concerns for correcting inequalities and increases in their schools of disadvantaged students, so did their scores in the dependent variable decrease. Once again, there was an advantage by Hispanic males over Hispanic females.

The variables that met the test of significance with mathematics as a criterion variable are included in table 4.42. The Schooling you think you'll get variable accounted for 22.7 percent of the total variance followed by increments of 2.9, 2.1 and 2.4 percent by the %
of drop-out students, Sex and Homework 2 variables, respectively. An additional 1.1, .5, .6 and .3 percent was added to the total variance by the family income, importance of correcting inequalities, the importance of school as the main activity after high school and Homework 1 variables, respectively.

Table 4.42

All Variables (Climate, Context, & Composition)

n=800 (Seniors)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>R</th>
<th>F-Value</th>
<th>Math B-Value</th>
<th>Stand. Error</th>
<th>Stand. P-Value</th>
<th>P-Value for B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Schooling</td>
<td>.227</td>
<td>234.39</td>
<td>.31</td>
<td>.09</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>% of Drop</td>
<td>.256</td>
<td>137.56</td>
<td>-.14</td>
<td>.01</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sex</td>
<td>.277</td>
<td>101.67</td>
<td>-.16</td>
<td>.30</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Homework 2</td>
<td>.301</td>
<td>85.85</td>
<td>.18</td>
<td>.12</td>
<td>.0001</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Family</td>
<td>.312</td>
<td>72.10</td>
<td>.10</td>
<td>.09</td>
<td>.0005</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Importance</td>
<td>.317</td>
<td>61.53</td>
<td>-.08</td>
<td>.22</td>
<td>.0071</td>
<td></td>
</tr>
</tbody>
</table>
inequalities

7  Importance  .323  54.00  .10  .41  .0083
work or
school

8  Homework 1  .326  48.03  -.07  1.01  .0337

The beta weights indicate positive values for the Schooling you think you'll get, Homework 2, family income and importance of work or school as the main activity after high school variables. Thus, increases in these variables were associated with increases in the dependent variable. The % of drop-out students, Sex, importance of correcting inequalities and Homework 1 variables were inversely related. So, as increases of drop out students were reported, students indicated more concern for correcting inequalities and no homework was assigned, these were associated with decreases in the dependent variable. Hispanic male students had an advantage over Hispanic females.

SUMMARY of RESULTS

In this chapter the main results obtained in the investigation of a stepwise regression applied to all the variables under the school climate, context, and composition constructs were presented. The tables indicated those variables that met the test of significance for both sophomore and seniors cohorts within each of the three dependent variables.
Overall, four climate variables were found to be consistently observed among the criterion variables. Parents lack of interest in student progress accounted for much of the variance. The importance of success in my work, bilingual program and the sex variables added consistently smaller amounts to the variance for both sophomore and senior cohorts.

Among the school context variables, three independent variables, Homework 2, Public vs. Private and Sex were found to meet the test of significance among all dependent variables for both sophomore and senior cohorts. The Homework 2 variable accounted for most of the variance in all instances.

The school composition variables observed with sophomore and senior cohorts that consistently met the test of significance included the 1) Schooling you think you'll get, 2) % 78-79 graduating class now in college, 3) % of disadvantaged students, 4) Sex and 5) Family income variables. Of these, Schooling you think you'll get met the test of significance with all the dependent variables for both sophomore and senior cohorts. The same was true for the % of 78-79 class now attending college, except for the mathematics test for the senior cohorts. The Schooling you think you'll get variable accounted for most of the variance. On the average, it accounted for 16 percent of the total variance. All other variables incremented smaller values.

A final stepwise regression included all possible independent variables from each of the constructs. An analysis of this
regression indicated that for sophomore cohorts, the variables that met the test of significance for all dependent variables included:
1) Schooling you think you'll get, 2) Homework 2, 3) % 78-79 graduating class in college, 4) Sex, and 5) Total minutes in class.
For the senior cohorts only the Schooling you think you'll get variable met the test of significance with all three dependent variables. For both sophomore and senior cohorts, the Schooling you think you'll get variable accounted for most of the variance with an average of 16 percent of the total variance. It should be noted that this variable was categorized under the school composition construct.
CHAPTER V

DISCUSSION

The original purpose of this study was to examine the relationship among the independent variables of school context, climate and composition variables and the dependent variables of vocabulary, reading comprehension and math raw scores taken from the HSB data file. These clusters of variables were examined under each construct utilizing a series of multiple regressions.

A sizable body of literature based on the effects of "school climate" influenced the main theoretical thrust of this study. The number of taxonomies created by researchers (Halpin & Croft, 1963, Tagiuri, 1968, and Moos, 1974) formed a general consensus that the school climate variable includes four dimensions (ecology, milieu, social system, and culture). Other researchers examined larger units (systems, districts, etc.) and a separate construct "school context" was distinguished from school climate (Bidwell & Kasarda, 1975, Brookover et al., 1979). In addition, following the Blau and Duncan (1972) tradition and the major findings of Coleman (1966) in the EEOR study, the "school composition" construct was used to include measurements of income, socio-economic backgrounds and other school measures often associated with SES.

The null hypotheses related to the school climate, context and composition variables were all rejected. Among the school climate variables, "parents lack of interest in student's progress" accounted
for an average of 5% of the variance among the sophomore cohorts, while the "parents lack of interest in school matters" variable accounted for only 4% of the variance among the senior cohorts with only math test scores as the criterion variable. Among the school climate variables the "homework 2" variable among the seniors was associated only with the mathematics test.

The "schooling you think you'll get" variable accounted for an average of 15% of the variance among the sophomore cohorts with all the criterion variables. The same was true among the senior cohorts except for the vocabulary test. A final regression with all the variables from the school context, climate, and composition was conducted. Of all these, the "schooling you think you'll get" variable accounted an average of 15% among the sophomore cohorts. The same variable also accounted for an average of 18% among the senior cohorts except for the vocabulary test.

Overall, the results of this study consistently indicated that Hispanic males scored higher on all the criterion tests than the female students. A review of the literature pertaining to sex differences in achievement indicates that, in general, female students have been found to excel in arithmetic (Kagan, 1964). Although other factors such as SES, age and IQ have been known to influence test results, my main focus was to determine whether or not the above noted differences are due to related aptitudes are the results of other socio-psychological factors (the significant other, culture, and expectations).
DISCUSSION RELATED TO SEX VARIABLE

Kagan (1964) in his early studies, of second and third graders, found that children in their early school experiences labeled school objects as either masculine or feminine and that this labeling was partly responsible for the degree of motivation a student has in mastering a particular academic task. In general, the investigator found that activities such as reading were somehow classified as feminine.

In a similar vein, Stein et al. (1971) found that classroom activities that were categorized as either masculine or feminine, often influenced the amount of time and the degree of interest that students had about a subject. Dwyer (1974) also gave evidence that activities that were labeled as either masculine or feminine and the degree to which they were perceived as sex appropriate or inappropriate, contributed to the overall variance of test scores. Dwyer concluded that the above differences were due to the apparent subject preference rather than to the child's biological sex.

Other authors have attributed sex differences to a "cognitive factor" that becomes present or activated during the onset of puberty. Herzog (1982) indicated in his review of the literature, that the survey of mathematical attainment done in twelve countries, conducted by the International Association for the Evaluation of Educational Attainment, gave evidence that boys in general performed a higher level both on computation and verbal problems than their female counterparts. Since many of these observations have been
attributed to socialization-practices, Herzog (1982) argued that despite the shift of attitudes connected with changing roles in the labor market, that as a whole, high school female students preferred to work in clerical, sales and service areas. He explains that these preferences are connected to what seems feasible for females in the labor market. In a similar fashion, the writer believes that Hispanic females score lower in areas of reading and math because the Hispanic culture exerts pressure among this group to either marry or obtain immediate employment after completing a high school degree. Therefore, college preparation or any other college-bound career might not be an immediate goal for female students which in turn is manifested in the amount of time and/or effort in school dealing with the subject areas already mentioned.

The investigator also believes that the choice of selecting certain jobs associated with the sex-factor is often reinforced by the selection of courses that are traditionally available to female students. The schools, in turn, provide a curriculum (track-system) where female students enroll in courses that are seemingly choice-free. This form of choice modifies plans not through a sex-linked factor nor preference but by the notion of accepting that there are certain occupations only open to women. Thus, the course selection of high school female students might indicate that the sex differences in test scores might be explained by forces in the labor market and are not deep-seated value differences between the sexes.

Gaskell (1985) provides a similar analysis by stating that
schools create differences among students by enrolling them in different courses. These differences no only apply to ethnic and racial groups but also to gender as well. If one were to make reference to Bowles & Gintis (1973) hypothesis that schools create inequalities by the fragmentation of students into groups, this hypothesis would also clearly apply to the above discussion. Gaskell also makes references to a similar fragmentation influenced by the selection of the courses available to female students.

It should be emphasized that, traditionally, Hispanic culture has preferred to provide higher education to the male members of the family. Favoring the males for this task may also be a function of adapting to American society among Hispanics. As previously stated, the economic limitations exhibited by this group appears to continue to perpetuate similar attitudes based on economic needs. In addition, trends in the review of educational ambition (Logan, 1975) suggest that, overall, male students report a higher educational ambition than females.

The above discussion has been presented out in order to provide plausible explanations for the consistent sex differences factor found in the test scores throughout this study. The investigator also wishes to acknowledge that the sex variable linked to academic success may also interact with other variables found in the schooling process but not included in this study.

DISCUSSION RELATED TO SCHOOL CLIMATE VARIABLE

At the beginning of this study, the investigator indicated that
one of the Coleman's findings in the EEOR study made reference to the influence of one's control over his/her destiny and the possible correlation to achievement. Noetzel et al. (1971) have also given a similar interpretation with respect to the "significant other". This concept states that a career is defined by the members of the nuclear family and extended kin sources. Schitfield et al. (1982), also confirmed similar findings and suggested that for minority groups this particular variable had more influence than among the white population.

Educational attainment has been associated with father's occupation and education in earlier models of school aspiration research (Duncan, 1967). A more complex model proposed by Sewell et al. (1969) linked educational attainment to the "significant others". The same authors defined this variable to be composed by those persons who exert greater influence upon the individual. Therefore, the students (in this case high school students) aspirations are relatively consistent with those expected by parents, relatives, and others. As already discussed, the expectations of a culture may also serve as the influence of the "significant others" as it is communicated by the process of enculturation in any given society.

How and in which ways are the aspirations of parents associated with educational attainment communicated or perceived by the students are not clear. Cokline and Daly (1981) have concluded that educational encouragement is communicated differently across families of diverse economic backgrounds. Following the same rationale, the
investigator believes that the same could be said of values most often transmitted by culture. The investigator, nevertheless, cautions the reader not to associate this idea with past theories of "cultural deprivation".

The "significant others" variable is of importance to this investigator for two reasons. First, analysis of the school climate variable data indicated that for the sophomore cohorts the variable "parents lack of interest in students progress" was inversely related to the criterion variables. Similarly, the "parents lack of interest in school matters" variable was also inversely related to the criterion variables among the senior cohorts. The analysis, then, indicates an association between parental interest (the significant other) and academic performance as measured by the criterion variables. Secondly, and important to our discussion, Hispanics in general have been reported to have higher drop out rates at the same time that their college-bound student rates have also considerably slowed down (CEH, 1981).

The consistency by which these two variables were observed and the amount of variance attributed to them deserves special attention. The model proposed by Sewell et al. (1970) assumes that social origins and ability have an effect on the educational and occupational attainment vis-a-vis intervening variables, in this case the "significant others". Despite the criticism by Wilson and Porter (1975) that the "significant others" variable is much weaker than originally proposed, Picou and Carter (1976) concluded that parental
encouragement has had a greater impact on aspirations, especially among students of urban areas. Consequently, in this particular study, the influence of the significant others as perceived by the Hispanic sophomores and seniors seems to have an influence upon their academic achievement.

DISCUSSION RELATED TO SCHOOL CONTEXT VARIABLE

Among the school context variables, the "homework 2" and the "public vs. private" variables deserve special attention. The analysis indicates that among the sophomore cohorts increases in the amount of time doing homework were consistently associated with all the criterion variables. The same variable also accounted for an average of 7% of the variance. The same variable also accounted for an average of 11% of the variance with the mathematics test scores among the senior cohorts. The rest of the variance, an average of 12%, was accounted for by the "public vs. private" variable. Similar findings were also found in the HSB data with respect to the same variables. Coleman et al. (1982), concluded that high school students scored higher, 15-20% of a standard deviation in reading, vocabulary and general mathematics, than their public school counterparts, after controlling for differences in family background. Coleman also attributed these gains to the disciplinary climate and quality of instruction found in the private schools.

The reader should remember that these findings spurred criticism from many social scientists during a period when "educational vouchers" had become a fad. This same period was also characterized
by public opinion with the aim of increasing the role of private education during a change of governmental leadership in our country.

Coleman's claims, like those in his EEOR study, prompted other researchers to provide other plausible explanations for the public and private school differences.

Among many of the critics, Willms (1985), argued that there were no pervasive private school effects on academic achievement and suggested that the so claimed "differences" were due to relative poor measures of academic growth that the tests used represent. In addition, he claimed that since the tests are not sensitive enough to detect these differences, no conclusions should be reached about on the achievement of public and Catholic schools.

In a similar argument, Alexander and Palla (1985), claim that the "common school effects" attributed to Catholic schools disappear when proper controls are applied to the selection of students, especially those enrolled in private schools. They also claim that the students enrolled in private schools and more-so those from low-SES and minority groups, represent the most academically able.

Jencks (1985), in reviewing the above studies, suggests that despite the criticisms and the arguments presented, these studies still show that Catholic school students raw scores increased more between the sophomore and senior years. He also suggests that despite the minimizing effects by the reanalysis of the above authors, there still exist differences. The analysis of this study also shows a similar pattern. The "public vs. private" variables accounted for
most of the variance among the seniors in the vocabulary and reading tests, whereas the incremented amount of time doing homework accounted for most of the variance among the sophomores. Jencks also indicates that between the senior years in the HSB data, the test scores are heightened and that this occurred during the time period when both groups were tested. Jencks also suggests that perhaps the Catholic and public elementary schools have a more similar curricula than Catholic and public high schools and that these differences may disappear over time. The investigator believes that since students attending Catholic schools did not appear to have an advantage over the Science and Civics tests, Jenck's explanation appears reasonable.

With respect to this analysis, the investigator contends that the "homework 2" variable represents a stronger relationship in the model of educational achievement represented by the study. It is assumed that regardless of student's ability, the mastery of any subject requires a factor of time associated with the acquisition of skills and content. This factor prevails in any school setting regardless of the student's school membership. Coleman et al. (1985), in the reanalysis of the HSB data, indicate that on the average Catholic-school students are much more likely to spend five or more hours a week doing homework than their public-school counterparts. The authors also indicate that this observation also holds for both white and minority students regardless of their academic track.

The amount of time doing homework becomes the center of discussion for the school context analysis. The reader is reminded
that in the first chapter the investigator provided a Hispanic profile and indicated some trends relevant to our discussion. At this point they are summarized as follow: 1) the median income for Hispanics is much lower than the rest of the population (for Puerto Ricans is worst, CEH, 1981); 2) the median age of the Hispanic population is 22.1 (NCES, 1981); 3) in general Hispanic males spent more hours working full-time (NCES, 1981).

The above findings are crucial to our discussion. On the average, Hispanics are at the lower end of the economic scale. Consequently, a large proportion of our school population spends, second to school, longer hours working to supplement family income. This economic reality is exacerbated by the allocation of precious time needed to improve achievement into the working schedule. The amount of time doing homework represents an important factor in the "boosting" of academic achievement of Hispanic high school students which is also crucial in the participation of higher education. Relevant also to our discussion, the National Longitudinal Study of the Class of 1972, indicated that among the factors cited by students as obstructing their education, in the order of highest response percentage are: poor study habits, money worries, family obligations, poor place to study and parents lack of interest in their education. The majority of the above variables have been included in our discussion as well as part of our cluster analysis. Duran (1983) has indicated that, in general, Hispanics respondents to the above factors, constituted higher percentages than those reported by whites.
and other non-Hispanic respondents.

Although some of the aforementioned variables were not included in the present study, there is evidence that poor study habits, lack of adequate space to study and family financial obligations all appear to deter the student from doing homework as well as minimize the student's ability to enroll in more advanced courses. The other two variables, parental concern as well as financial resources, have all been discussed under the "significant other" variable.

DISCUSSION RELATED TO SCHOOL COMPOSITION VARIABLE

As already stated at the beginning of this study, the school composition construct included parental income levels, education, and school composition variables often associated with SES (including percentages of students attending college, race, and other background variables considered representative of the socio-economic basis of the immediate community). The "schooling you think you'll get" variable accounted for a major portion of the variance among the sophomore cohorts with all the criterion variables. Among the senior cohorts, this variable was only associated with the math and reading test scores. Instead, the "percentage of the 1978-79th graduating class attending now college" accounted for most of the variance with the vocabulary test scores.

As explained at the beginning of the first chapter, other measurements of school composition have not been considered adequate measures of the SES variable. These variables in the past have in some way nullified other possible variables that might have
characterized the individual personal decisions that students had in continuing to achieve and remain in school. Many researchers (Bowles & Gintis, 1972; Alexander & Eckland, 1975; Coleman, 1966) have concluded that social class, above all other variables, strongly influenced the aspirations and expectations of high school students. Despite the inclusion of similar variables in our model, the "schooling you think you'll get" variable accounted for most of the variance in the school composition cluster and in the "all-variables" regression. This finding was also consistent among both the sophomore and senior cohorts. Therefore, the writer believes that the above variable adds a social-psychological dimension to the understanding of academic achievement that perhaps has not been considered as influential in past research.

A final regression equation, including all variables of each of the individual constructs, yielded a much stronger association with the "schooling you think you'll get" variable for the sophomore cohorts with all the criterion variables. The senior cohorts math and reading test scores were also associated with this variable. The vocabulary tests scores for the latter group were associated with the "percentage of 1978-79 class now in college". These same results and associations were yielded with the school composition variables. The school composition variable that accounted for most of the variance (schooling you think you'll get) was exactly the same variable that accounted for most of the variance with all-variables regression.

Why the "schooling you think you'll get" variable accounted for
most of the variance in the school composition and the all-variables regression requires further speculation. It is possible that the above socio-psychological variable has provided a truer picture of the "internal decisions" that students make in terms of schooling regardless of their socio-economic status. This variable may also provide an evaluation for the student of his/her position within the dimension of formal education. This self-assessment requires a personal evaluation that encompasses financial resources, abilities, ambition, social-support and other variables that might have been observed otherwise in isolation. To insist that the student's future is solely dependent on his/her socio-economic background is questionable. Persistence in school and more-so in high school, as presented in this study in the form of achievement, is a function of numerous factors that may include parental concern, school structure, and enrollment in courses that qualify students to compete in college entrance exams.

Elliott and Dweck (1981) have concluded that the achievement of students is related to the "low expectancy" perceived by them as an evaluation of their ability to succeed in school. Although this low expectancy may be composed of an array of factors; students at one time or another, the same authors concur, are confronted with an evaluation of their performance. Thus, if high school students have indicated an interest for a different orientation (family or importance of correcting inequalities, see page 66) then their goals have been shifted to other areas not related to academic achievement.
The investigator believes that the orientation (family or social inequalities) becomes an inhibitor and/or a performance impairer in the school factors and academic achievement paradigm.

What takes place within the institutions of learning has become a great concern in our society. Yet, as Coleman had implied in his earlier study (EEOR), schools for blacks and whites were surprisingly "equal" and "school facilities" had little effect on students. For this very same reason, SES has become the most influential factor in explaining differential achievement among school students. The data presented here, nonetheless, indicates that there are other characteristics that enhance academic achievement regardless of SES and that these could be manipulated and controlled by schools. The HSB data also indicates that the schools themselves are a source of considerable inequality. Coleman had at least hinted at this by stating that differences between minority and majority increased with time spent in school. However, one main problem was that this research failed to measure school related factors adequately.

The HSB data posited the differential achievement between public and private schools as one stemming from the demands and practices within the institutions. The same policies found in private schools (Catholic/Private) could also be found in high-achieving public schools. Thus, it appears important that schools reorganize their academic demands and provide an environment that is conducive to high academic achievement. Schools are not designed to change the socio-economic status of the individual, but they may provide the
avenues for personal success (motivation, academic achievement, higher education levels) commonly associated with monetary rewards (better work opportunities, higher salaries, higher expectations).

RECOMMENDATIONS FOR FURTHER STUDY

The primary purpose of this study was to examine the relationship between school related factors (climate, context, and composition) and academic achievement. A longitudinal analysis of the HSB data will provide a follow-up analysis of the cohorts as they embark and progress through their college years. This follow-up analysis will permit us to determine if the factors originally associated with high school achievement continue to influence achievement in college. Furthermore, it would appear to be desirable to delineate distinctions between those variables that may enhance college entrance and those that influence college graduation.

It is recommended that the tests used in follow-up studies be administered to those cohorts prior to their freshman year in high school. This would provide a baseline for comparison between freshmen and sophomores and between freshmen and seniors. In addition, the cognitive tests used in the HSB data should also be subject-specific in order to ascertain students test scores as a direct result of educational interventions. It is evident that the value of curricular content has been neglected. Tests sensitive to curricular content should indicate which specific educational interventions make a difference and what type of students benefit the most from them.
When comparing the effects of private and public schools, data on the cumulative effect of many years of exposure to the above schooling is needed. It has been suggested that the differences may be short-term; therefore, a more comprehensive design which permits following the cohorts after high school is needed. This type of proposed study could also provide a profile of the schools, whether public or private, that assures their organization is similar. It should not be assumed that a particular private or public school is representative of the rest, especially if the conclusions drawn indicate that their organization and structures are associated with higher achievement. Careful consideration must be given when including socio-psychological variables, such as the "schooling you think you'll get" variable. The analysis has indicated that there is an association between achievement and college expectations. This variable may only indicate what should be most obvious: students who indicated higher levels of schooling had stronger commitments to higher achievement. However, the direction of these two variables may be reversed for in order to clarify this relationship, further consideration should be given to the commitments that students may have prior to entering high school or to those commitments that have been made during high school as part of the expectations created by this atmosphere. These would in turn show different expectations as well as achievement in the long run.

Finally, if the "significant others" variable is to be adequately assessed, influences by peers, teachers, and others should
also be included. To assume that students are only influenced by parents is to simplify the complexity of other relationships. In the event that a number of individuals do influence the importance of schooling, degrees of influences should be carefully measured. To determine how the "significant others" interest is perceived by the student should be a matter left to psychological inquiry.

The investigator expects that this study will stimulate other researchers to seek other school factors related to achievement of Hispanic high school students. Unfortunately, the studies reported here lacked a very important individual difference control variable, (ie. control for English-language ability). Further research should reveal the types of courses that Hispanic students generally take in schools. The opportunity to enter into college-bound tracks by Hispanics should also be compared to the rest of the general school population. This focus on academic curriculum option may well prove to be the missing-link between high school graduation and college education for Hispanics admission to institutions of higher education.


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The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

February 9, 1987

[Signature]