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ABSTRACT

Based on data from the High School and Beyond Study, a longitudinal study of high school sophomores and seniors, this report summarizes some of the study's findings on the differences between Hispanics and non-Hispanic blacks and whites in school delay, aspirations, test scores, language usage, and socioeconomic status. Tabular data indicate that: Cubans and other Latin Americans had higher incomes than non-Hispanic blacks, Puerto Ricans and Mexican Americans; over 56% Puerto Rican and 50% Mexican American seniors and 52% Mexican American and 45% Puerto Rican sophomores reported their fathers had not finished high school; Spanish was the dominant or sole household language for 17% other Latin American, 40% Cuban, 32% Mexican American, and 48% Puerto Rican seniors and for 61% Cuban, 55% Puerto Rican, and about 14% other Latin American sophomores; Hispanics, except Cubans, had lower educational apirations than non-Hispanic blacks or whites; average scores on mathematics, reading, and vocabulary tests were lower for Hispanic subgroups than for non-Hispanic whites; proficiency in English and in Spanish and family socioeconomic status were positively related to mathematics and reading scores, while frequency of Spanish language usage was negatively related to these scores. Data reliability is discussed. (NQA)

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bulletin

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Hispanic Students in American High Schools: Background Characteristics and Achievement

Hispanic students generally have lower educational aspirations than blacks or non Hispanic whites, according to a 1980 survey sponsored by the National Center for Education Statistics (NCES). Hispanic students also have lower average scores on math, reading and vocabulary tests than non-Hispanic whites. Among Hispanic subgroups, however, great variation is found in both academic achievement and background characteristics.

These are some of the findings of a recently published report entitled **Achievement of Hispanic Students in American High Schools: Background Characteristics and Achievement.** Based on data from the High School and Beyond Study (HS&B), the Center's longitudinal study of high school sophomores and seniors, the report focuses on the differences among Hispanic subgroups (table 1), and between Hispanics and the rest of the student population with respect to school delay, aspirations,

Table 1.—The HS&B Hispanic sample, by subgroups

Hispanic subgroup	Number of sophomores	Number of seniors
Mexican-American	2,123	1,893
Cuban	306	334
Puerto Rican	369	308
Other Latin American	723	642
TOTAL	3,521	3,177

test scores, language usage, socioeconomic status, and immigration history. Policymakers and researchers have long had a great interest in the process and outcomes of education for Hispanic students. The desirability of bilingual bicultural education and the effects of segregation and varying school characteristics on the achievement of Hispanic students have all been debated. This study provides additional data for addressing some of these concerns. Some of the major findings are summarized below.[1]

[1] Findings are generalizable only to sophomores and seniors of 1980. Group differences cited in this bulletin are statistically significant at the 95-percent level of confidence.

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Yearly family income varied substantially among subgroups. While Hispanics in general had lower incomes than non-Hispanic whites, Cubans and other Latin Americans had higher incomes than non-Hispanic blacks. Puerto Ricans and Mexican-Americans tended to have lower incomes than Cubans and other Latin Americans. As shown in table 2, about 49 percent of the Puerto Rican seniors, as compared with 20 percent of their Cuban counterparts, reported in 1980 that their yearly family income was under $12,000. The corresponding percentages for Mexican-Americans and other Latin Americans were 30 and 23 percent, respectively.

At the high end of the income scale (over $20,000 per year) a similar pattern prevailed—more Cubans and other Latin Americans had higher incomes than did Puerto Ricans and Mexican-Americans (see table 2).

Table 2.—Percent distribution of yearly family incomes, by population subgroup: Spring 1980

Subgroup	Sample size[1]	Total	Under $12,000	$12,000 to $20,000	Over $20,000
Sophomores					
Mexican-Americans	1,597	100.0	34.9	42.8	22.4
Cuban	252	100.0	25.8	44.7	29.6
Puerto Rican	269	100.0	41.8	44.5	13.7
Other Latin American	568	100.0	21.7	44.4	33.9
Non-Hispanic black	714	100.0	36.9	40.4	22.7
Non-Hispanic white	828	100.0	15.4	40.1	44.6
Seniors					
Mexican-American	1,598	100.0	29.5	41.5	29.0
Cuban	293	100.0	20.4	38.1	41.5
Puerto Rican	243	100.0	48.6	28.8	22.6
Other Latin American	513	100.0	22.5	42.3	35.2
Non-Hispanic black	766	100.0	39.7	35.8	24.5
Non-Hispanic white	871	100.0	10.7	40.5	48.7

[1] For comparison purposes and to reduce computation costs, simple random subsamples of 1,000 non Hispanic whites and 1,000 non Hispanic blacks were selected for the analysis. The sample sizes reported in the table reflect the actual number of students who provided data for the analysis.

The percentage of seniors not residing with their fathers was higher for Puerto Ricans (19 percent) and non-Hispanic blacks (21 percent) than for Cubans (3 percent) and non-Hispanic whites (6 percent). The general pattern of the sophomore data was similar, although the percentage not residing with their fathers was not significantly greater for the Puerto Ricans than for the Mexican-Americans and Cubans (see table 3).

Among those who knew how much education their fathers had attained, over 56 percent of the Puerto Rican seniors reported that their fathers had not finished high school. Similarly, over 50 percent of Mexican American seniors said their fathers did not graduate from high school as compared with 20 percent for non-Hispanic whites and 30 percent for other Latin Americans. The statistics for sophomores are somewhat different. For example, while the percentage of Mexican American sophomores whose fathers had less than a high school education was also high (52 percent), the corresponding figure for Puerto Ricans was somewhat lower (45 percent).

Language Use

Use of the Spanish language by these students varied among Hispanic subgroups (see table 4). Spanish was the dominant or sole household language among seniors for only 17 percent of the other Latin Americans but for 70 percent of the Cuban seniors. (The corresponding figures were 32 percent for Mexican-Americans and 48 percent for Puerto Ricans) Spanish was

Table 3.--Percent distribution of father's education, by subgroup: Spring 1980

Subgroup	Father's education						
	Total	Less than high school	At least high school but less than 4 years college	4-year college or higher	Sample size[1]	Not residing with father	Don't know father's education
Sophomores							
Mexican-American	100.0	52.3	40.7	7.0	2,009	10.0	23.9
Cuban	100.0	36.1	49.4	14.5	283	10.5	18.4
Puerto Rican	100.0	44.9	48.1	7.0	333	14.2	24.2
Other Latin American	100.0	21.3	57.3	21.4	684	8.9	23.0
Non-Hispanic black	100.0	30.6	54.5	14.9	893	18.7	29.1
Non-Hispanic white	100.0	18.2	54.0	27.8	955	6.4	17.5
Seniors							
Mexican-American	100.0	50.6	40.4	9.0	1,798	7.6	15.7
Cuban	100.0	42.6	41.1	16.3	320	3.2	10.8
Puerto Rican	100.0	56.1	35.2	8.7	278	18.8	19.0
Other Latin American	100.0	29.5	51.0	19.5	607	9.7	17.1
Non-Hispanic black	100.0	36.9	52.2	10.9	909	20.9	19.6
Non-Hispanic white	100.0	19.7	54.4	25.9	968	6.1	9.1

[1] For comparison purposes and to reduce computation costs, simple random subsamples of 1,000 non Hispanic whites and 1,000 non-Hispanic blacks were selected for the analysis. The sample sizes reported in the table reflect the actual number of students who provided data for the analysis.

Table 4.--Percent distribution of language usage at home, by population subgroup: Spring 1980

Subgroup	Sample size	Total	English monolingual[1]	English-dominant bilingual[2]	Spanish-dominant bilingual[3]	Spanish monolingual[4]
Sophomores						
Mexican-American	2,082	100.0	36.2	31.9	20.7	11.1
Cuban	299	100.0	29.3	9.5	37.2	23.9
Puerto Rican	357	100.0	31.2	14.1	38.8	15.9
Other Latin American	676	100.0	71.1	15.4	9.3	4.3
Seniors						
Mexican-American	1,867	100.0	29.8	38.2	20.5	11.5
Cuban	322	100.0	20.6	9.3	44.2	26.0
Puerto Rican	305	100.0	27.1	25.2	28.4	19.2
Other Latin American	605	100.0	63.7	19.7	9.6	6.9

[1]English monolingual: people at home usually speak English, no other language.
[2]English-dominant bilingual: people at home usually speak English, also Spanish.
[3]Spanish-dominant bilingual: people at home usually speak Spanish, also English.
[4]Spanish monolingual: people at home usually speak Spanish, no other language.

the dominant or sole household language among sophomores for large percentages of Cubans and Puerto Ricans (61 and 55 percent), but only for about 14 percent of other Latin Americans.

However, the Hispanic subgroups were very similar with respect to mean scores on the self-assessed English-proficiency measure (not shown in tables).

Academic Achievement

Rates of school delay (percentages of students who were 2 or more years older than the modal age for their grade) were considerably higher for Hispanic students (13 and 10 percent for Puerto Rican and Mexican-Americans seniors) than for their non-Hispanic white counterparts (3 percent) (see table 5).

Table 5.—Percentage of students who were 2 or more years older than the modal age for their grade, by population subgroup: Spring 1980

Subgroup	Sophomores	Seniors
Mexican-American	13.0 (1,926)[1]	9.8 (1,810)
Cuban	14.5 (292)	6.4 (330)
Puerto Rican	11.5 (341)	12.6 (29[illegible])
Other Latin American	9.3 (652)	8.8 (586)
Non-Hispanic black	12.9 (878)	7.0 (908)
Non-Hispanic white	4.9 (964)	2.5 (974)

[1]Sample size for each group is presented in parentheses.

Hispanics, except Cubans, had lower educational aspirations than non-Hispanic blacks or non-Hispanic whites. Among seniors, for example, the number who expected to complete at least 4 years of college was 34 percent for Mexican-Americans and 35 percent for Puerto Ricans as compared with 45 percent for non-Hispanic blacks and 44 percent for non-Hispanic whites (see table 6). When seniors and sophomores were combined, Cubans had higher aspirations than all others.

Average scores on mathematics, reading, and vocabulary tests were lower for Hispanic subgroups than for non Hispanic whites. Among Hispanics, Cubans had higher scores on all three tests than Mexican Americans and Puerto Ricans (see table 7), even after some background factors such as socioeconomic status and immigration history were considered.

Based on the result of multiple regression analyses, a number of background characteristics were found to be related to achievement. As shown in table 8, proficiency in English and proficiency in Spanish, as well as the socioeconomic status of the family, were positively related to mathematics and reading scores. The frequency of use of the Spanish language, however, was negatively related to these test scores.

Reliability of the Data

HS&B included a base-year data collection from 30,000 sophomores and 28,000 seniors to 1,015 high schools in spring 1980. Hispanics were deliberately oversampled to provide a sound data base for investigating many aspects of education for Hispanics.[3] For analysis purposes the Hispanic sample was organized into four subgroups. Comprehensive information was obtained concerning the students' backgrounds, school experiences, achievement, linguistic practices, exposure to bilingual education, immigration histories, and educational plans.

Since the data on which this study is based are responses supplied by a sample of students, statistics derived from such data are subject to two broad kinds of error: non sampling and sampling errors. Non-sampling errors arise from such sources as the failure of some students to return the survey forms, misinterpretation of questions, etc. Sampling errors occur because the data were supplied by only a sample of students, not by all students throughout the United States.

[3]The Office of Bilingual Education and Minority Language Affairs (OBEMLA) and the Office for Civil Rights (OCR) provided supplemental funds for including additional Hispanic students and questionnaire items in the study.

Table 6.—Percent distribution of year of schooling respondents expect to complete, by population subgroup: Spring 1980

Subgroup	Sample size	Total	Less than high school completion	At least high school, but less than 4 years college	4-year college degree	Master's degree	Ph.D., M.D., or other advanced degree	Total college[1]
Sophomores								
Mexican-American	2,031	100.0	2.5	69.5	14.0	6.6	7.3	27.9
Cuban	292	100.0	1.7	48.3	22.6	6.6	20.9	50.1
Puerto Rican	354	100.0	2.1	62.0	17.4	8.0	10.5	35.9
Other Latin American	691	100.0	1.6	61.5	21.5	6.1	9.2	36.8
Non-Hispanic black	939	100.0	1.7	56.5	23.1	6.9	11.7	41.7
Non-Hispanic white	971	100.0	1.0	55.6	25.0	8.7	9.7	43.4
Seniors								
Mexican-American	1,857	100.0	1.1	65.3	19.0	8.6	6.0	33.6
Cuban	327	100.0	0.7	44.4	22.1	17.2	15.6	54.9
Puerto Rican	302	100.0	1.0	64.4	15.8	11.2	7.5	34.5
Other Latin American	631	100.0	1.0	62.2	20.0	7.2	9.5	36.7
Non-Hispanic black	963	100.0	0.9	53.6	24.3	11.2	9.9	45.4
Non-Hispanic white	977	100.0	0.2	56.2	23.9	10.7	9.0	43.6

[1]This column is not included in the percent distribution; it is the sum of the preceding three columns.

Table 7.—Mean scores on mathematics, reading, and vocabulary tests, by population subgroup: Spring 1980

Subgroup	Mathematics			Reading			Vocabulary		
	Sample size[1]	Mean score	Standard deviation	Sample size	Mean score	Standard deviation	Sample size	Mean score	Standard deviation
Sophomores									
Mexican-American	1,864	7.5	3.5	1,865	2.7	1.7	1,862	2.9	1.6
Cuban	259	8.7	4.3	248	3.5	2.1	254	3.4	2.1
Puerto Rican	313	7.1	3.2	311	2.7	1.8	316	3.0	1.6
Other Latin American	659	8.0	3.4	660	3.0	1.8	659	3.2	1.8
Non-Hispanic black	868	6.7	3.2	873	2.5	1.7	872	2.7	1.6
Non-Hispanic white	930	10.3	3.8	931	3.9	2.0	933	4.1	1.9
Seniors									
Mexican-American	1,621	8.4	4.0	1,632	3.3	1.9	1,628	3.5	1.8
Cuban	286	10.1	4.3	292	3.9	2.1	292	4.2	1.9
Puerto Rican	257	8.0	4.6	262	3.3	2.0	265	3.5	1.9
Other Latin American	557	8.3	3.9	565	3.3	1.9	567	3.6	1.9
Non-Hispanic black	854	7.7	3.8	854	3.2	2.0	856	3.2	1.8
Non-Hispanic white	893	11.6	4.0	901	4.9	2.0	898	4.8	1.9

[1] For comparison purposes and to reduce computation costs, simple random subsamples of 1,000 non-Hispanic whites and 1,000 non-Hispanic blacks were selected for the analysis. The sample sizes reported in the table reflect the actual number of students who provided data for the analysis.

Table 8.—Standardized regression coefficients

Background characteristics	Sophomores		Seniors	
	Mathematics	Reading	Mathematics	Reading
Spanish proficiency	.13*	.12*	.25*	.21*
English proficiency	.09*	.16*	.13*	.22*
Spanish use	-.08*	-.09*	-.14*	-.11*
Length of residence	-.08*	-.03	-.04	-.07*
Socioeconomic status	.22*	.17*	.23*	.15*
Sex (male = 1)	.10*	.04	.13*	.06*
Cuban	.04	.08*	.10*	.06*
Puerto Rican	-.08*	-.03	-.01	-.02
Other Latin American	-.02	.00	-.03	-.03
Proportion of variance explained (R^2)	.10*	.09*	.15*	.11*

*Indicates the coefficient is significantly different from zero at the 95-percent level of confidence.

One of the non-sampling errors that could potentially influence these findings is "non response bias." This refers to the fact that not all of the students who were asked to participate did so. Overall about 86 percent did participate. Among those who participated, some still failed to answer certain questions. The response rates for items included in this study varied from 71 percent to 99 percent (with the majority over 90 percent) among various subgroups. (The response rate of an item is the ratio of the number of respondents to the targeted sample size.)

The sample used in this survey is one of a large number of possible samples of the same size that could have been selected. Estimates derived from different samples would differ from each other. The standard error of an estimate is a measure of the precision with which an estimate from a particular sample approximates the value that would be obtained if data were collected from the entire population instead of just a sample. The standard error of a difference has a similar meaning. All differences cited in this bulletin are statistically and significantly different from zero at the 95-percent level of confidence (two-tailed test).

The standard error (s.e.) of a percentage (p) can be approximated by the following formula:

$$s.e.(p) = 1.5\ [p(100 - p)/n]^{1/2},$$

where n is the sample size, and 1.5 is a factor used to adjust for the particular sample design used in High School and Beyond. The standard error of the difference between two subpopulation percentages (d) can be approximated by taking the square root of the sum of the squares of the standard errors from p_1 and p_2. That is,

$$s.e.(d) = [var(p_1) + var(p_2)]^{1/2}$$

where

$$var(p) = [s.e.(p)]^2.$$

The above approximations generally are conservative.

Similarly, the standard error of a mean (x) can be approximated by the following formula:

$$s.e.(x) = D \left(\frac{s}{\sqrt{n}} \right),$$

where s is the standard deviation, n is the sample size, and D is a correction factor estimated to be 1.3. The standard error for the difference between two means

$$(d = x_1 - x_2)$$

can be approximated as follows:

$$s.e.(d) = [s.e.(x_1)^2 + s.e.(x_2)^2]^{1/2}.$$

Additional Information

Copies of this report may be purchased from the U.S. Government Printing Office, Washington, D.C. 20402. To order, send check or money order for $5.50 made payable to Superintendent of Documents, and refer to Hispanic Students in American High Schools. Background Characteristics and Achievement, GPO S/N 065-000-00135-7. Additional information about HS&B is available from Samuel S. Peng, National Center for Education Statistics, 408 Presidential Building, 400 Maryland Avenue SW., Washington, D.C. 20202, telephone (301) 436-6688.

A description of the Center's statistical program and a catalog of NCES publications may be obtained from the Statistical Information Office, National Center for Education Statistics, 1001 Presidential Building, 400 Maryland Avenue SW., Washington, D.C. 20202, telephone (301) 436-7900.

Inquiries about availability of related computer tapes should be directed to Data Systems Branch, National Center for Education Statistics, 1001 Presidential Building, 400 Maryland Avenue SW., Washington, D.C. 20202, telephone (301) 436-7944.