



National Archives and Records Administration

8601 Adelphi Road
College Park, Maryland 20740-6001

Staff Only Note

Equality of Educational Opportunity (EEOS): Coleman Study
NC3-012-80-001

NARA staff disposed the microfiche copy of the main documentation for this series after additional materials were added to the main documentation, making the microfiche copy of the documentation obsolete. There are no plans to re-microfiche the documentation.

Lynn Goodsell
Archivist Specialist
Electronic and Special Media Records Services Division (NWME)
September 2005



National Archives and Records Administration

8601 Adelphi Road
College Park, Maryland 20740-6001

Equality of Educational Opportunity Study (EEOS), 1966
(Coleman Study)
NC3-012-80-001

Records of the Office of Education (Record Group 12)

List of Documentation

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NARA Supplemental Documentation

Staff notes; duplicate copies of record layouts, survey tests,
and computer printouts; and other record layout material Available Upon Request

NARA Processing Materials

Sample Dumps Available Upon Request

Lynn Goodsell, Archives Specialist
Electronic and Special Media Records Services Division (NWME)
March 18, 2005



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User Note

Researchers using the Equality of Educational Opportunity Study (EEOS): Coleman Study, 1966 may be interested in "Trends in School Segregation, 1968-73" by James S. Coleman, Sara D. Kelly, and John A. Moore (The Urban Institute, August 1975) as supplemental documentation. "Trends in School Segregation, 1968-73" is located in the supplemental documentation for the Elementary and Secondary School Civil Rights Surveys 1968, 1970, 1972, and 1976 (Record Group 235).

Lynn Goodsell
Archives Specialist
Electronic and Special Media Records Services Division (NWME)
March 18, 2005



NOTICE TO RESEARCHERS

The National Archives acquired in 1982 physical custody of the data on magnetic tape. At that time, the National Archives reformatted the data into standard fixed-length records as part of the processing which also copied the data on technologically current magnetic computer tape. A copy of the COBOL program which executed the reformatting and duplicating the first grade data is attached.

Thomas E. Brown of the National Archives and Records Administration prepared this notice on October 3, 1991.



NOTICE TO RESEARCHERS

The data files contain a variable called "USOE School Code." This is an eight-character field. The first character provides the region code. See page 551 of the Equality of Educational Opportunity, Superintendent of Documents Catalog No. FS 5.238:38001, (Washington DC: U.S. Government Printing Office, 1966) for the region codes. The second character in the USOE School Code is an SMSA indicator with 1 = SMSA and 2 = Non-SMSA. The third through eighth character is the school number within the region and the SMSA or Non-SMSA. ~~The school number may be included in National Inventory of School Facilities and Personnel, OE-21026.~~ The U.S. Office of Education conducted in 1962 this survey of all public school plants in the United States.

*Another ~~source~~ reference for this study is the
(FS 5.221:21026)*

Thomas E. Brown of the National Archives and Records Administration prepared this notice on October 3, 1991.

National Archives



Washington, DC 20408

Date : May 1, 1991
Reply to
Attn of : NNXA
Subject : EEOS (Coleman) COLE.PRIN.GR12 dataset
(NC3-012-80-001)
To : File

The file COLE.PRIN.GR12, or "12th Grade Principals + Follow-ups", was destroyed during May 1991. The file was not in any of the documentation related to the accession and not listed on the SF258 as part of the EEOS collection. The accession documentation did not indicate that the file was ever intended to be part of the accession. In addition, in the "Notes on Data" section of the documentation package (p. 19), the accessioning archivist made the following evaluation:

On the reels with the Principal Questionnaire data file is a second data file titled "12th Grade Principals + Follow-ups." It contains 823 records, 80 characters long. NARS received no documentation for this second file. The only information that could be obtained on it is that it is of no significance in the analysis of the Principal Questionnaire data and of the overall study data.

(emphasis added)

Therefore, because this particular file was not considered part of the original accession and the general lack of any information or documentation associated with the COLE.PRIN.GR12 dataset, NNXA concluded that this file be destroyed.



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3-012-80-1

THE EQUALITY OF EDUCATIONAL OPPORTUNITY (COLEMAN) STUDY

DOCUMENTATION

RECORD GROUP 012

RECORDS OF THE OFFICE OF EDUCATION

001



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User Note

The following original table of contents for the series documentation was prepared in April 1984. NARA staff has added additional materials to the documentation since then, making the page numbering in the original table of contents obsolete although the basic organization of the content has not changed. Please refer to the more recent list of documentation for page counts.

Lynn Goodsell
Archives Specialist
Electronic and Special Media
Records Services Division (NWME)
March 18, 2005



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ABSTRACT

ABSTRACT

United States Department of Education.

Equality of Educational Opportunity (Coleman) Study (EEOS), 1966

[machine-readable data file] created by the Educational Testing Service (ETS), of Princeton, N.J., for the Office of Education, U.S.

Department of Health, Education and Welfare. Washington: U.S.

Department of Education [Producer], 1980; Washington: National Archives and Records Service [Distributor].

PROVENANCE: The Educational Testing Service (ETS), Princeton, N.J., created these records for the Office of Education, U.S. Department of Health, Education and Welfare. James S. Coleman of Johns Hopkins University was a consultant to the Office of Education. The Office of Education was transferred from the Department of Health, Education and Welfare to the newly created U.S. Department of Education in 1979. In 1980 the National Archives obtained a copy of the EEOS data tapes and documentation from Johns Hopkins University, through the U.S. Department of Education.

TYPE OF FILE: Microdata. The unit of observation is the individual person.

UNIVERSE DESCRIPTION: Public schools in the United States and the District of Columbia.

SUBJECT-MATTER DESCRIPTION: EEOS was conducted under the provisions of

Section 402 of the Civil Rights Act of 1964, to provide the U.S. President and the U.S. Congress with data concerning "the lack of availability of equal educational opportunity for individuals by reason of race, color, religion, or national origin...." The study consists of tests scores and questionnaire responses obtained from 1st, 3rd, 6th, 9th and 12th grade students, and teachers; and questionnaire responses from principals. The sample was taken from the public schools in the United States and the District of Columbia. Tests were administered to determine ability and achievement in verbal skills, non-verbal associations, reading comprehension and mathematics. Questionnaires were administered to obtain information on age, sex, grade, race, ethnic identity, socio-economic background, attitudes toward learning, educational and career goals, racial attitudes, student and faculty racial composition, discipline, school environment, school facilities, salaries, and curriculum.

TECHNICAL DESCRIPTION:

FILE STRUCTURE: Fixed length, non hierarchical.

FILE SIZE: 7 data sets. Approximately 639,650 individual records.

FILE SORT SEQUENCE: Batch number, category, student serial number, side, scribe number, school serial number, USOE school code.

REFERENCE MATERIAL:

Documentation Relating to the Equality of Educational Opportunity Study.

Available from the Machine-Readable Archives Branch (MNSR), (address below).

This is a guide to the machine-readable data file. It contains a general introduction to the documentation, series and subseries titles with sample sizes, notes on the documentation, record layouts, tests, questionnaires, and portions of the computer printouts.

RELATED PRINTED REPORTS:

Equality of Educational Opportunity and Supplemental Appendix to the Survey on Equality of Educational Opportunity, both by James S. Coleman, et. al. (Office of Education, DHEW, 1966) located in the National Archives Library.

RELATED MACHINE-READABLE DATA FILES: None.

DESCRIPTORS: Characteristics of schools, Racial composition, Physical facilities, Educational resources, Curriculum, Characteristics of teachers, Education and teaching experience, Salary level, Attitudes toward race, Characteristic of students, Socioeconomic background, Attitudes toward integration, bussing, and achievement.



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INTRODUCTION



INTRODUCTION

The National Center for Educational Statistics (changed to National Center for Education Statistics after 1974), Office of Education, U.S. Department of Health, Education, and Welfare, conducted the Equality of Educational Opportunity Study (EEOS) under the provisions of Section 402 of the Civil Rights Act of 1964:

Sec. 402. The Commissioner shall conduct a survey and make a report to the President and the Congress, within two years of the enactment of this title, concerning the lack of availability of equal educational opportunities for individuals by reason of race, color, religion, or national origin in public educational institutions at all levels in the United States, its territories and possessions, and the District of Columbia.

The Office of Education set-out to document the "lack of availability of equal educational opportunities" implied by the Act. The emphasis was on the inequality of school facilities to examine the theory that the quality of facilities determined the quality of a student's academic achievement.

The period in which this study was undertaken has been characterized as a time of "social system self-consciousness" marked by a national commitment to restructure society so as to overcome injustices associated with the historic problems of poverty and race. Thus, EEOS documents the U.S. Government's use of a social survey as an instrument of national policy making. Conclusions drawn from analyses of the data shifted the focus of subsequent public policy and research from an emphasis on school facilities (ie. input) to achievement (output) as measures of the quality of public schools. Family background was said to have a greater impact on the academic success or failure of a student than the quality of school facilities.

Several publications have resulted from EEOS data; the most notable being ON EQUALITY OF EDUCATIONAL OPPORTUNITY, edited by Frederick Mosteller and Daniel P. Moynihan (Random House, 1972).

EEOS consists of tests scores and questionnaire responses obtained from 1st, 3rd, 6th, 9th and 12th grade students, and teachers: and questionnaire responses from a principal survey. The data were obtained from a sample of the public schools in the United States and the District of Columbia. The sample was

designed to permit comparisons between Negro or other minority students and white students in general, and in separate urban and rural localities. Tests were administered to determine ability and achievement in verbal skills, non-verbal associations, reading comprehension and mathematics. Questionnaires were administered to obtain information on age, sex, grade, race, ethnic identity, family background, attitudes towards learning, educational goals, racial attitudes, student and faculty racial composition, discipline problems, school environment, home environment, school facilities and curriculum. The questionnaires were prepared by the National Center for Educational Statistics, Office of Education, DHEW. The tests used were existing published tests. Some 568,743 public school students were tested and questioned about available school facilities. Respondents were surveyed once. There is one record per respondent for a total of approximately 639,650 records.

Related machine-readable files in the National Archives and in the National Archives Center for Machine-Readable Records include the National Evaluation of the Emergency School Aid Act, 1973-1976 (3-012-83-001); the Sustaining Effects Study, 1975-1978 (3-419-80-001); the Elementary and Secondary School Civil Rights Survey, 1968-1976 (3-441-76-104); and the National Assessment of Educational Progress (NAEP), 1969- (C-419-81-002).

EEOS was headed by an outside consultant, James S. Coleman, from Johns Hopkins University, who had major responsibilities for its design, administration and analysis. The National Center for Educational Statistics was responsible for the operation of the study. The Educational Testing Service (ETS), of Princeton, N.J., carried-out the field work, keyed the raw data to magnetic tape, and created the documentation.

In 1979, the U.S. Department of Health, Education, and Welfare (DHEW) underwent a major reorganization. As a result, the Office of Education, DHEW, became the U.S. Department of Education, and the National Center for Education Statistics became one of its subunits. In 1980, the National Archives obtained its copy of EEOS (Coleman Study) from Johns Hopkins University, through the U.S. Department of Education.

Documentation for this file consists of this introduction, a list of series titles, subtitles, and sample sizes, Notes on the Documentation, record layouts, NARA produced record layouts, questionnaires, tests for all but the 1st grade, notes on the data, and portions of the computer printouts.

Supplemental documentation consisting of the U.S. Commissioner of Education's Report to the President of the United States, the President of the Senate, and the Speaker of the House, under the titles Equality of Education Opportunity and Supplemental Appendix to the Survey on Equality of Educational Opportunity by James S. Coleman, et. al. (GPO 1966), and containing study designs, methods,

procedures, and findings, may be found in the National Archives Library.

This documentation, including this introduction, was prepared by Chauncey B. Jessup, Archivist, Machine-readable Branch (NNSR), April 1984



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SERIES TITLES/SUBSERIES TITLES/SAMPLE SIZES



SERIES AND SUBSERIES TITLES

SERIES NUMBER

SAMPLE SIZE

- I. Documentation Relating to the Equality of Educational Opportunity Study.
- II. Computer Tape Containing the Equality of Educational Opportunity (Coleman) Study.

SUBSERIES

1. 1st Grade File.	76,133
2. 3rd Grade File.	135,750
3. 6th Grade File.	125,170
4. 9th Grade File.	134,030
5. 12th Grade File	97,660
6. Teacher File.	66,826
7. Principal File.	4,081

Total 639,650



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NOTES ON THE DOCUMENTATION



NOTES ON THE DOCUMENTATION

Record layouts for the 1st Grade File, the tests portion of the 3rd Grade File, the tests portion of the 6th Grade File, the 9th Grade File, locations 91-96 and 169-323 of the 12th Grade File, and the Teacher File were recreated by NARS. At least one record from each file was validated to verify the NARS produced items.

The codes for the 1st Grade File questionnaire responses are alphabets. The codes for the 1st Grade File tests responses and scores are numeric. The 1st Grade File School Survey Tests Administrator's Manual with examples of the 1st Grade tests is in this documentation package, but tests instruments like the ones completed by the respondents are not available.

Where the questionnaires and test are not coded, the type of codes in the dumps were applied to the range of responses, in a numerical or alphabetical order, beginning with a 1 or an "A" for the first response choice. Only the 1st Grade File questionnaire responses have alphabet codes.

Where the record layouts are not broken down to the individual variable level, individual variables can be determined by the range of responses on the tests and questionnaire instruments. If 1 to 9 responses are allowed, the length of the code for that variable will be one character long. If 1 to 99 responses are allowed, the length of the code will be two characters long. All the researcher needs to know is the beginning and end of a set of variables, which are given in these record layouts, and the individual variables can easily be determined.

NOTES FOR RECORD LAYOUT:

For locations 1-36 of the 9th Grade survey refer to the record layout for 6th Grade.

This system applies to the Teachers' and Principals' surveys



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NOTES ON THE DATA



NOTES ON THE DATA

Teacher File: NARS received only two reels of data for the Teacher File, but they were labeled "1 of 4" and "2 of 4". The record count for the two reels NARS received is 44,193 records. Thus, the researcher may find a discrepancy in the total record count for this file.

Principal File: Locations 300 to 539 are padded with zeros.

On the reels with the Principal Questionnaire data file is a second data file titled "12th Grade Principals + Follow-ups." It contains 823 records, 80 characters long. NARS received no documentation for this second file. The only information that could be obtained on it is that it is of no significance in an analysis of the Principal Questionnaire data and of the overall study data.



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RECORD LAYOUTS
CODES
&
PORTIONS OF THE COMPUTER PRINTOUTS



Teachers Study



Equality of Educational Opportunity (Coleman) Study

Teacher File

Record Layout

VARIABLE

LOCATION

Part II (Test) #Right	37-39
Part II (Test) #Wrong	40-42
(blank)	43-168
Part II (Test) Item Responses	169-198
Part I, Questionnaire Responses	199-303

SCHOOL SURVEY
TESTS

•

TEACHER
QUESTIONNAIRE

TEACHER QUESTIONNAIRE

This questionnaire should be completed by all persons in the schools in which students are tested who fall into either of the two following categories:

- (a) teachers teaching one or more classes this year.
- (b) anyone who spends more than five hours per week in guidance counseling.

Mark the space on the answer sheet that is correct for you for each question. Mark only one answer for each question. You may omit any question which you would prefer not to answer, but please answer them all if you possibly can.

PART I

199 1. What is your sex?

- (A) Male
- (B) Female

200 2. How old were you on your last birthday?

- (A) Under 26
- (B) 26 to 35
- (C) 36 to 45
- (D) 46 to 55
- (E) 56 to 65
- (F) 66 or older

201 3. Where have you spent most of your life?

- (A) In this city, town, or county
- (B) In this state outside this city, town, or county
- (C) In another state in the U. S.
- (D) In Puerto Rico or another U. S. possession
- (E) In Mexico
- (F) In Canada
- (G) In a country other than the U. S., Canada, or Mexico

202 4. In what type of community have you spent most of your life? (Give your best estimate if you are not sure.)

- (A) In the open country or in a farming community
- (B) In a small town (less than 10,000 people) that was not a suburb
- (C) Inside a medium size city (10,000 to 100,000 people)
- (D) In a suburb of a medium size city
- (E) Inside a large city (100,000 to 500,000 people)
- (F) In a suburb of a large city
- (G) In a very large city (over 500,000 people)
- (H) In a suburb of a very large city

203 5. Are you

- (A) Negro
- (B) white
- (C) American Indian
- (D) Oriental
- (E) other

204 6. Are you of Puerto Rican or Mexican American background?

- (A) Puerto Rican
- (B) Mexican American
- (C) Neither of these

205 7. Where did you graduate from high school?

- (A) A high school in this city, town, or county
- (B) A high school in this state, but outside this city, town, or county
- (C) A high school in another state in the U. S.
- (D) A high school in Puerto Rico or another U. S. possession
- (E) A high school in another country

GO ON TO THE NEXT PAGE.

This questionnaire has not been copyrighted.
Questions were provided by the U. S. Office of Education.

203

675

206-207 8. What work does (did) your father do? You probably will not find his exact job listed, but mark the answer space corresponding to the one that is closest.

- (A) Technical—such as draftsman, surveyor, medical or dental technician, etc.
- (B) Official—such as manufacturer, officer in a large company, banker, official or inspector, etc.
- (C) Manager—such as sales manager, store manager, office manager, factory supervisor, etc.
Proprietor or owner—such as owner of a small business, wholesaler, retailer, contractor, restaurant owner, etc.
- (D) Semiskilled worker—such as factory machine operator, bus or cab driver, meat cutter, etc.
Clerical worker—such as bankteller, bookkeeper, sales clerk, office clerk, mail carrier, messenger, etc.
Service worker—such as a barber, waiter, etc.
Protective worker—such as policeman, detective, sheriff, fireman, etc.
- (E) Salesman—such as real estate or insurance salesman, factory representative, etc.
- (F) Farm or ranch manager or owner
- (G) Farm worker on one or more than one farm
- (H) Workman or laborer—such as factory or mine worker, fisherman, filling station attendant, longshoreman, etc.
- (I) Professional—such as accountant, artist, clergyman, dentist, doctor, engineer, lawyer, librarian, scientist, college professor, social worker, etc.
- (J) Skilled worker or foreman—such as baker, carpenter, electrician, enlisted man in the armed forces, mechanic, plumber, plasterer, tailor, foreman in a factory or mine, etc.
- (K) Don't know

208 9. How many years of school did your father complete?

- (A) None, or some grade school
- (B) Finished grade school
- (C) Some high school
- (D) Finished high school
- (E) Technical or business school after high school
- (F) Some college, but less than 4 years
- (G) Graduated from a regular 4 year college
- (H) Attended graduate or professional school
- (I) Don't know

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10. How many years of school did your mother complete?

- (A) None, or some grade school
- (B) Finished grade school
- (C) Some high school
- (D) Finished high school
- (E) Technical or business school after high school
- (F) Some college, but less than 4 years
- (G) Graduated from a regular 4 year college
- (H) Attended graduate or professional school
- (I) Don't know

210

11. What is the highest earned college degree you hold? Do not report honorary degrees.

- (A) No degree
- (B) A degree or diploma based on less than 4 years work
- (C) A Bachelor's degree
- (D) A Master's degree
- (E) Professional or Specialist diploma (Sixth year)
- (F) A Doctor's degree

211-212

12. What was your major field of study in undergraduate school? If you had two majors, mark the one in which you took most work.

- (A) Agriculture
- (B) Biological Science
- (C) Business—Commercial
- (D) Elementary Education
- (E) Engineering
- (F) English or Journalism
- (G) Foreign Language
- (H) Home Economics
- (I) Industrial Arts
- (J) Mathematics
- (K) Music—Art
- (L) Philosophy
- (M) Physical Education—Health
- (N) Physical Science
- (O) Psychology
- (P) Social Sciences, including History
- (Q) Vocational or Technical Education
- (R) Special Education
- (S) Other
- (T) I did not go to college.

GO ON TO THE NEXT PAGE.

- 213 13. Which of the categories below best describes the institution where you took most of your undergraduate college courses? If you took equal course work in several institutions, answer in terms of the last institution attended.

(A) I did not go to college (Skip to question 25)
 (B) Public—university or technological institution
 (C) Public—normal school or teachers college
 (D) Public—other (junior college, etc.)
 (E) Private—university, college, or technological institution
 (F) Private—normal school or teachers college
 (G) Private—other (junior college, etc.)

NOTE: If you did not go to college, omit questions 14 through 24, and continue with question 25.

- 214 14. What was the highest degree offered by that institution when you were a student?
- (A) Certificate only
 (B) Bachelor's degree
 (C) Master's degree
 (D) Professional or specialist diploma (Sixth year)
 (E) Doctor's degree

- 215 15. What is the location of that institution?
- (A) In this city, town, or county
 (B) In this state but outside this city, town, or county
 (C) In another state in the U. S.
 (D) In Puerto Rico or another U. S. possession
 (E) In Mexico
 (F) In Canada
 (G) In a country other than the U. S. Canada, or Mexico

- 216 16. When you attended that institution, how many of the students were white?
- (A) All
 (B) 90-99%
 (C) 75-89%
 (D) 50-74%
 (E) 25-49%
 (F) 10-24%
 (G) 1-9%
 (H) None

Questions 17 through 23 ask you what your college was like when you went there. Answer for the same institution as in the questions above.

- 217 17. Was there keen competition among most of the students for high grades?

(A) Yes
 (B) No

- 218 18. Did freshmen have to take orders from upperclassmen for a period of time?

(A) Yes
 (B) No

- 219 19. Were most of the students of a very high calibre academically?

(A) Yes
 (B) No

- 220 20. Did you often discuss with other students how to make money?

(A) Yes
 (B) No

- 221 21. Were the students under a great deal of pressure to get good grades?

(A) Yes
 (B) No

- 222 22. Did you say hello to students you didn't know?

(A) Yes
 (B) No

- 223 23. How would you rate the academic level of your college among all the nation's colleges and universities? (Give your best estimate)

1 (A) Top 10%
 2 (B) 11-20%
 3 (C) 21-30%
 4 (D) 31-40%
 5 (E) 41-50%
 6 (F) 51-60%
 7 (G) 61-70%
 8 (H) 71-80%
 9 (I) 81-90%
 0 (J) 91-100%

GO ON TO THE NEXT PAGE.

- 224 24. How many credits of college work have you had beyond your highest degree?
- (A) None
 - (B) 1 to 10 semester hours
 - (C) 11 to 20 semester hours
 - (D) 21 to 30 semester hours
 - (E) 31 or more semester hours
- 225 25. As of June 1965, what was the total number of years of full-time teaching experience you have had? (Consider counseling as teaching experience.)
- (A) None
 - (B) 1 or 2
 - (C) 3 or 4
 - (D) 5 to 9
 - (E) 10 to 14
 - (F) 15 to 19
 - (G) 20 to 29
 - (H) 30 or more
- 226 26. As of June 1965, what was the number of years of full-time teaching experience you have had in this school? (Consider counseling as teaching experience.)
- (A) None
 - (B) 1 or 2
 - (C) 3 or 4
 - (D) 5 to 9
 - (E) 10 to 14
 - (F) 15 to 19
 - (G) 20 to 29
 - (H) 30 or more
- 227 27. In the last school year (1964-65), how many school days were you absent from work?
- (A) I was not a regular teacher or counselor last year
 - (B) None
 - (C) 1 or 2
 - (D) 3 to 6
 - (E) 7 to 15
 - (F) 16 or more
- 228 28. What type of state teaching certification do you have?
- (A) Noncertified
 - (B) Temporary, provisional, or emergency certification
 - (C) Regular certification but less than the highest certification in this state
 - (D) The highest certification offered in this state (normally life, permanent, or long-term)
- 229 29. How did you happen to be assigned to this particular school rather than some other school in this district?
- (A) I asked to work in this school
 - (B) I was placed in this school
- 230 30. Have you ever attended any summer institutes sponsored by the National Science Foundation or financed by the National Defense Education Act or by the 1965 Elementary-Secondary Education Act?
- (A) None
 - (B) 1
 - (C) 2 or 3
 - (D) 4 or more
- 231 31. Have you ever attended any summer institutes or comparable training programs that offer special training in teaching or counseling the culturally disadvantaged?
- (A) No
 - (B) Yes, 1
 - (C) Yes, 2 or more
- 232 32. What will be your total annual salary from this school system this year? (Estimate supplements for extra services by using supplements from last year.)
- (A) Below \$3,000
 - (B) \$3,000 to \$3,999
 - (C) \$4,000 to \$4,999
 - (D) \$5,000 to \$5,999
 - (E) \$6,000 to \$6,999
 - (F) \$7,000 to \$7,999
 - (G) \$8,000 to \$8,999
 - (H) \$9,000 to \$9,999
 - (I) \$10,000 or more
- 233 33. Overall, how would you rate students in your school on how hard they try in school?
- (A) Excellent
 - (B) Good
 - (C) Average
 - (D) Fair
 - (E) Poor
- 234 34. Overall, how would you rate the academic ability level of the students in this school?
- (A) Excellent
 - (B) Good
 - (C) Average
 - (D) Fair
 - (E) Poor

GO ON TO THE NEXT PAGE.

- 235 35. What is your employment status in this school system?
- (A) I am on a tenured appointment.
 - (B) I have a regular full-time appointment but not on tenure.
 - (C) I am a substitute teacher on temporary assignment.

- 236 36. Are you a member of any national honorary society such as Kappa Delta Pi or Phi Beta Kappa?
- (A) Yes
 - (B) No

- 237 37. Suppose you could go back in time and start college again; in view of your present knowledge, would you enter the teaching profession?
- (A) Definitely yes
 - (B) Probably yes
 - (C) Undecided
 - (D) Probably no
 - (E) Definitely no

- 238 38. If you could choose, would you be a faculty member in some other school rather than this one?
- (A) Yes
 - (B) Maybe
 - (C) No

- 239 39. What kind of a high school would you most like to work in? (Answer even if you are not a high school teacher.)
- (A) An academic school with strong emphasis on college preparation
 - (B) A comprehensive school
 - (C) A special curriculum school that is designed to serve the culturally disadvantaged
 - (D) Vocational, technical or trade school
 - (E) Commercial or business school

- 240 40. If you could take your choice of school settings, which would you select from among the following?
- (A) All children of professional and white-collar workers
 - (B) Mostly children of professional and white-collar workers
 - (C) Children from a general cross section of the community
 - (D) Mostly children of factory and other blue-collar workers
 - (E) All children of factory and other blue-collar workers
 - (F) Children of rural families
 - (G) I have no preference

- 241 41. What kind of school do you prefer to work in, as far as ethnic composition is concerned?
- (A) A school with predominantly Anglo Saxon students
 - (B) A school with a mixture of Anglo Saxons and minority ethnic groups
 - (C) A school with predominantly minority ethnic groups
 - (D) I have no preference

- 242 42. What kind of school do you prefer to work in, as far as racial composition is concerned?
- (A) An all white school
 - (B) A mostly white school but with some nonwhite students
 - (C) A school that has about half white and half non-white students
 - (D) A mostly nonwhite school but with some white students
 - (E) A school with all nonwhites
 - (F) I have no preference

- 243 43. What type of class do you most like to teach or counsel?
- (A) A high ability group
 - (B) An average ability group
 - (C) A low ability group
 - (D) A mixed ability group
 - (E) I have no preference

- 244 44. In your judgment, what is the general reputation of this school among teachers outside the school?
- 1 (A) Among the best
 - 2 (B) Better than average
 - 3 (C) About average
 - 4 (D) Below average
 - 5 (E) A poor school
 - 6 (F) Don't know

- 245 45. About what percentage of the students you teach or counsel this year are white?
- (A) None
 - (B) 1 to 9%
 - (C) 10 to 24%
 - (D) 25 to 49%
 - (E) 50 to 74%
 - (F) 75 to 89%
 - (G) 90 to 99%
 - (H) All

GO ON TO THE NEXT PAGE.

46. Below is a list of current school issues on which we want the judgments of teachers throughout the country. Please answer each in terms of your judgment of the best educational practice.

246

- a. Which of the following policies on neighborhood elementary schools represents the best educational practice, in your estimation?
- (A) Neighborhood elementary schools should be maintained regardless of any racial imbalance produced.
 - (B) Neighborhood elementary schools should be maintained, but where possible a device, such as reducing the grade span of schools, "pairing" schools, or another practice, should be used to promote racial balance.
 - (C) The idea of neighborhood elementary schools can be abandoned without significant loss.

247

- b. Which of the following policies on bussing of elementary school children represents the best educational practice in your estimation?
- (A) Children should not be bussed to a school other than their neighborhood school.
 - (B) Children should be bussed to another school but only to relieve overcrowding.
 - (C) Nonwhite children should be bussed to another school in order to achieve racial balance.
 - (D) Both white and nonwhite children should be bussed into schools with a predominantly different racial composition, to achieve racial balance.

248

- c. Do you believe there is a sound basis in educational policy for giving compensatory programs to culturally disadvantaged students at extra per pupil cost?
- (A) Yes
 - (B) No
 - (C) Undecided

249

- d. What type of faculty do you believe is best for a school with an all nonwhite or predominantly non-white student body?
- (A) An all white faculty
 - (B) Predominantly white faculty
 - (C) About equal number of white and nonwhite faculty
 - (D) Predominantly nonwhite faculty
 - (E) All nonwhite faculty
 - (F) Doesn't matter
 - (G) Selected without regard to race
 - (H) Some degree of integration, but ratio doesn't matter

250

- e. What type of faculty do you believe is best for a school with a racially heterogeneous student body?
- (A) An all white faculty
 - (B) Predominantly white faculty
 - (C) About equal number of white and nonwhite faculty
 - (D) Predominantly nonwhite faculty
 - (E) All nonwhite faculty
 - (F) Doesn't matter
 - (G) Selected without regard to race
 - (H) Some degree of integration, but ratio doesn't matter

251

- f. What type of faculty do you believe is best for a school with an all white or predominantly white student body?
- (A) An all white faculty
 - (B) Predominantly white faculty
 - (C) About equal number of white and nonwhite faculty
 - (D) Predominantly nonwhite faculty
 - (E) All nonwhite faculty
 - (F) Doesn't matter
 - (G) Selected without regard to race
 - (H) Some degree of integration, but ratio doesn't matter

GO ON TO THE NEXT PAGE.

47. Surveys of school problems show a number of things reported by teachers as reducing the effectiveness of the school. Below is a partial list of these problems. Mark Y (yes) for those situations that constitute a problem in your school. Mark N (no) for those that do not constitute a problem in your school.

- 252 a. The home environment of the students is not good.
- 253 b. Pupils are not well fed and well clothed.
- 254 c. The different races or ethnic groups don't get along together.
- 255 d. Parents attempt to interfere with the school.
- 256 e. There is too much competition for grades.
- 257 f. There is too much emphasis on athletics.
- 258 g. There are too many absences among students.
- 259 h. The classes are too large for effective teaching.
- 260 i. There should be a better mixture, the students are all too much of one type.
- 261 j. Too much time has to be spent on discipline.
- 262 k. The students aren't really interested in learning.
- 263 l. There is a lack of effective leadership from the school administration.
- 264 m. The parents put too much pressure on the students for good grades.
- 265 n. The teachers don't seem to be able to work well together.
- 266 o. Teachers have too little freedom in such matters as textbook selection, curriculum, and discipline.
- 267 p. There is too much student turnover.
- 268 q. The parents don't take enough interest in their children's school work.
- 269 r. We have poor instructional equipment: supplies, books, laboratory equipment, etc.
- 270 s. There are too many interruptions during class periods.
- 271 t. There is too much teacher turnover.
- 272 u. There is too much turnover of administrators.

273 48. Are you a member of any teachers' associations?
 (A) No
 (B) Yes, an officer
 (C) Yes, an active worker
 (D) Yes, a member but not an active worker

274 49. Do you read regularly any national educational or subject matter journals such as the NEA Journal, The Nation's Schools, The English Journal, etc.?
 (A) No, not regularly
 (B) Yes, 1 regularly
 (C) Yes, 2 regularly
 (D) Yes, 3 or more regularly

275 50. Do you expect to remain full-time in public education until you reach retirement age?
 (A) Definitely yes
 (B) Probably yes
 (C) Probably no
 (D) Definitely no

276

51. About how many hours a day do you spend outside of your scheduled work day in preparation for teaching or counseling?

- (A) None
- (B) 1
- (C) 2
- (D) 3
- (E) 4 or more

277

52. How many hours a day do you spend in classroom teaching this year?

- 1 (A) None (Skip to question 63)
- 2 (B) 1
- 3 (C) 2
- 4 (D) 3
- 5 (E) 4
- 6 (F) 5
- 7 (G) 6 or more

NOTE: If you spend no time in classroom teaching, omit questions 53 through 62 and continue with question 63.

278-280

53. On the average, how many students do you have per class this year? If you teach only one class, answer for that one. Write the number in the spaces at the top of the answer area. If the number is less than 100, put a 0 in the first space, then write the number; if the number is less than 10, put 0's in the first and second spaces, then write the number in the third space. Now blacken the spaces below the three numbers you have written which correspond to those numbers.

281

54. (Omit if you teach only fifth grade or below.) How many different subjects are you teaching this term? Count different levels of a subject as different subjects. For example, 9th and 10th grade English are two subjects, and 3rd and 4th year French are two subjects.

- (A) 1
- (B) 2
- (C) 3
- (D) 4
- (E) 5
- (F) 6
- (G) 7
- (H) 8 or more

GO ON TO THE NEXT PAGE.

296-297

58. What is the lowest grade in which you teach this year?

- (A) Nursery or kindergarten
- (B) 1
- (C) 2
- (D) 3
- (E) 4
- (F) 5
- (G) 6
- (H) 7
- (I) 8
- (J) 9
- (K) 10
- (L) 11
- (M) 12

298-299

59. What is the highest grade in which you teach this year?

- (A) Nursery or kindergarten
- (B) 1
- (C) 2
- (D) 3
- (E) 4
- (F) 5
- (G) 6
- (H) 7
- (I) 8
- (J) 9
- (K) 10
- (L) 11
- (M) 12

300

60. From a realistic viewpoint, there may be some jobs from which Negroes have been excluded. Do you personally feel that a teacher or guidance counselor should encourage Negro students to aspire to such jobs?

- (A) Yes
- (B) Yes, with a full discussion of the difficulties
- (C) No
- (D) No opinion

301

61. In general, what type of institution would be best for most Negroes who are going to college?

- (A) Most Negroes will be better off going to a Negro college
- (B) Most Negroes will be better off going to a predominantly white college
- (C) It makes little or no difference either way

GO ON TO THE NEXT PAGE.

282

55. Apart from any time on official assignment in guidance, how many hours a week do you spend in individual or group counseling, both formal and informal?

- (A) None
- (B) 1 or 2 hours per week
- (C) 3 to 5 hours per week
- (D) 6 to 10 hours per week
- (E) 11 or more hours per week

56. (Omit if you teach only 5th grade or below.) For each area listed, indicate how many courses you are teaching in that area this year. NOTE: Courses at different levels should be counted separately: for example, first year French and second year French would be two foreign language courses.

- (A) None
- (B) One
- (C) Two
- (D) Three
- (E) Four
- (F) Five or more

283

a. Science courses such as biology, chemistry, general science, and physics

284

b. Foreign languages such as French, German, and Latin

285

c. Social studies such as history, civics, and economics

286

d. English including literature, drama, speech, and journalism

287

e. Mathematics such as algebra, geometry, trigonometry. Do not include commercial arithmetic or shop mathematics.

288

f. Industrial arts such as general shop, wood-working, metalworking, drafting. Do not include job training courses.

289

g. Vocational education, trade education, and job training such as auto mechanics, foundry, distributive education, and health occupations.

290

h. Commercial such as typing, shorthand, book-keeping, and commercial arithmetic

291

i. Agriculture

292

j. Home economics

293

k. Health and physical education

294

l. Other such as art, music, orientation

295

57. Because of ability grouping of students in some schools, some teachers teach students at predominantly one ability level. Which of the categories below best fits your classes?

- (A) All high ability groups
- (B) All low ability groups
- (C) Combination of various ability groups
- (D) Ability grouping is not used in this school

302 62. If you could choose only between these two kinds of students, which would you rather teach?

- (A) A student with average ability whose parents have given him a strong interest in school achievement.
- (B) A student with high ability whose parents have not given him any interest in school achievement.

303 63. Do you spend any of your time on assignment as a school guidance counselor? Do not count home room activities.

- (A) No (Skip to question 73)
- (B) Yes, less than 5 hours per week (Skip to question 73)
- (C) Yes, 5 hours per week (Skip to question 73)
- (D) Yes, 6 to 10 hours per week
- (E) Yes, 11 to 15 hours per week
- (F) Yes, 16 to 20 hours per week
- (G) Yes, 21 to 25 hours per week
- (H) Yes, more than 25 hours per week

NOTE: If you spend 5 hours or less each week as a guidance counselor (you answered option A, B, or C in question 63), go to question 73. If you spend more than 5 hours a week in counseling, please continue with questions 64 through 72.

64. What title best describes your official counseling position?

- (A) Counselor
- (B) Guidance counselor
- (C) Adjustment counselor
- (D) Vocational counselor
- (E) Director of Guidance
- (F) Dean
- (G) Vice principal
- (H) Other

65. How many students are formally assigned to you in your capacity as guidance counselor?

- (A) Under 200
- (B) 200-249
- (C) 250-299
- (D) 300-349
- (E) 350-399
- (F) 400-499
- (G) 500-699
- (H) 700 or more

66. How many different students, on the average, do you counsel in a week?

- (A) Under 10
- (B) 10-19
- (C) 20-29
- (D) 30-39
- (E) 40-49
- (F) 50-59
- (G) 60-69
- (H) 70 or more

For question 67, use the following scale by marking the appropriate space on the answer sheet.

- (A) Under 5%
- (B) 5-9%
- (C) 10-14%
- (D) 15-19%
- (E) 20-24%
- (F) 25-29%
- (G) 30-34%
- (H) 35-39%
- (I) 40-44%
- (J) 45-49%
- (K) 50% or more

For each of the counseling areas listed below in question 67, indicate the approximate percentage of total counseling time with pupils that you devote to each over the whole school year:

- 67. a. Educational counseling: course selection, programming, etc.
- b. Educational counseling: college choice, college major, etc.
- c. Personal and/or emotional adjustment, etc.
- d. Vocational, job selection, etc.

GO ON TO THE NEXT PAGE.

68. As of June, 1965, how many years of experience had you had as a part- or full-time guidance counselor?
- (A) None
 - (B) 1 or 2 years
 - (C) 3 or 4 years
 - (D) 5 to 9 years
 - (E) 10 to 14 years
 - (F) 15 to 19 years
 - (G) 20 or more years
69. Was guidance or a related discipline (e. g. , psychology) your major area of study leading to your highest degree?
- (A) Yes
 - (B) No
70. How many professional guidance counseling organizations do you belong to, such as American School Counselor Association, NVGA, APGA, etc.?
- (A) None
 - (B) One
 - (C) Two
 - (D) Three
 - (E) Four
 - (F) Five
 - (G) Six or more
71. How many professional guidance counseling journals do you read regularly? (Personnel and Guidance Journal, National Vocational Guidance Quarterly, etc.)
- (A) None
 - (B) One
 - (C) Two
 - (D) Three
 - (E) Four or more
72. If you had to choose a single one, which of the following sources of information do you think best predicts a pupil's success or failure in higher education?
- (A) Teacher recommendation(s)
 - (B) Group or individual intelligence or scholastic aptitude test scores
 - (C) Other standardized test scores (e. g. , personality and vocational inventories, etc.)
 - (D) School grades
 - (E) Other

GO ON TO THE NEXT PAGE.

The final part of the questionnaire consists of a short test of verbal facility. It is voluntary and anonymous, as is the remainder of the questionnaire. It is included to obtain a simple measure of the verbal facility of teachers throughout our nation. Here, as in the survey as a whole, your help is essential for assessing the educational opportunities of American children in 1965.

Most people finish these questions in fifteen minutes or less. Please do not refer to any book or discuss these questions with anyone before you answer them.

Each question consists of a sentence in which one word is missing; a blank indicates where the word has been removed from the sentence. Beneath each sentence are five words, one of which is the missing word. You are to select the missing word by deciding which one of the five words best fits in with the meaning of the sentence.

Sample Question

We had worked hard all day so that by evening we were quite -----.

- (A) small (B) tired (C) old
(D) untrained (E) intelligent

If you understand the sample sentence you will realize that "tired" is the missing word because none of the other words fits in with the meaning of the sentence. Next, on the answer sheet, you find the space numbered the same as the question and blacken the space which has the same letter as the missing word.

- 169 73. Dick apparently had little ----- in his own ideas for he desperately feared being laughed at.
(A) interest (B) depth (C) confidence
(D) difficulty (E) continuity
- 170 74. No money should be wasted on luxuries until all ----- have been provided for.
(F) assets (G) opportunities (H) resources
(J) proceeds (K) necessities
- 171 75. France is still, if not the only country in the world where ----- is an art, at least the only one where the dressmaker and the milliner are artists.
(A) democracy (B) behavior (C) society
(D) dress (E) conversation
- 172 76. The ----- of the animals was astounding; they would sit unmoving as we walked about and took their pictures.
(F) stupidity (G) tameness (H) grace
(J) shyness (K) photography
- 173 77. He told the story apparently with indifference, yet with ----- enough to fix the words in his hearers' memory.
(A) jurisdiction (B) literacy (C) emphasis
(D) insight (E) ecstasy
- 174 78. Down with them all! I am taking my ----- for all the humiliation I endured in my youth.
(F) revenge (G) punishment (H) reward
(J) time (K) opportunity
- 175 79. At sea he was an amateur, not an expert, and thus for the first time became an ----- instead of a man of action.
(A) authority (B) instigator (C) onlooker
(D) outcast (E) inspiration
- 176 80. Science, art, literature, philosophy, and religion are the institutions that ----- great civilizations from mere groups of villages.
(F) regulate (G) extricate (H) distinguish
(J) release (K) save
- 177 81. As often happens to those in a bad humor, it seemed to him that everyone regarded him with ----- and that he was in everybody's way.
(A) aversion (B) curiosity (C) respect
(D) understanding (E) fear

GO ON TO THE NEXT PAGE.

- 178 82. People in temperate climates, faced with many -----, gain resources within themselves which eventually lead to a greater prosperity than that possessed by people where living conditions are easier.
(F) obstacles (G) directions (H) advantages
(J) possibilities (K) experiences
- 179 83. He was fired from a job sorting oranges because he was not able to ----- well enough.
(A) produce (B) sample (C) walk
(D) discriminate (E) dye
- 180 84. During the course of the trial he exhausted every form of ----- in an attempt to prove his innocence.
(F) camouflage (G) intrigue (H) appeal
(J) credit (K) insistence
- 181 85. To make you understand my point I must go back a bit and seem to change the subject, but the ----- will soon be plain.
(A) correction (B) effect (C) origin
(D) controversy (E) connection
- 182 86. In pace, the industrial revolution has been not a revolution at all but a ----- change, dependent on the energy and ingenuity of individuals and limited by the scarcity of men possessing these qualities.
(F) gradual (G) sudden (H) deliberate
(J) doubtful (K) debatable
- 183 87. The shortage of wage labor in the farming districts ----- the invention of labor-saving devices.
(A) delayed (B) threatened (C) determined
(D) quickened (E) characterized
- 184 88. You deplore heresy only if you accept an orthodoxy; you talk of damnation only if you believe in the possibility of -----.
(F) recantation (G) salvation (H) heresy
(J) perfection (K) error
- 185 89. Because of the system of growing crops until the land was -----, cotton culture was ever on the move in quest of fresh and fertile soils.
(A) exhausted (B) cleared (C) reclaimed
(D) improved (E) satiated
- 186 90. The paper currency did not depreciate to a great degree, but it tended to ----- with the success or failure of allied armies and with the conditions of the crops and trade.
(F) balance (G) diminish (H) circulate
(J) stabilize (K) fluctuate
- 187 91. Himself a man who had vainly striven against -----, he readily accepted the dollar sign as the hallmark of success.
(A) graft (B) materialism (C) suppression
(D) defeat (E) poverty
- 188 92. To be dependent upon them would embitter my whole life; I should feel begging to be far less -----.
(F) criminal (G) degrading (H) restricting
(J) mistaken (K) crucial
- 189 93. Even when the profession is fairly lucrative, its gains are ----- by the fact that the work must all be done by the practitioner's own hand.
(A) obscured (B) exaggerated (C) increased
(D) developed (E) limited
- 190 94. The early Puritans sought to fortify themselves against ----- by acquiring the habit of self-denial.
(F) generosity (G) temptation (H) happiness
(J) life (K) persecution
- 191 95. Consumption of protein declines in periods of economic stress because it is the most ----- of all essential food elements.
(A) desirable (B) nutritious (C) concentrated
(D) stable (E) expensive
- 192 96. They could tell from the dark funnel-shaped cloud coming their way that a tornado was probably -----.
(F) present (G) crucial (H) normal
(J) over (K) imminent

GO ON TO THE NEXT PAGE.

- 193 97. The diplomatic remonstrance was so ----- that
it was almost equivalent to a declaration of war.
(A) well-worded (B) astute (C) strong
(D) intentional (E) clever
- 194 98. When the ----- of universal suffrage based on
universal ignorance was perceived, education was
given a new significance.
(F) equality (G) danger (H) loss
(J) usefulness (K) success
- 195 99. The art of reading comes without undue pains to a
great many of us, but it is a gift which is certainly
not -----.
(A) exclusive (B) profitable (C) appreciated
(D) universal (E) refused
- 196 100. Assuming that most writing problems are within the
scope of the sentence, the author concentrated on
the ----- as the focal point of his freshman English
textbook.
(F) paragraph (G) theme (H) sentence
(J) topic (K) grammar
- 197 101. The ----- of living, the arrangement of the day so
that he might be on time everywhere and leave no
detail unattended, absorbed the greater part of his
vital energy.
(A) necessity (B) adventure (C) awareness
(D) exhaustion (E) mechanics
- 198 102. In trying to build up a new style of design in opposi-
tion to the technical potentialities of the century, he
was just as much an ----- as the architect who
disguises a modern town hall as a Greek temple.
(F) explorer (G) atheist (H) introvert
(J) escapist (K) optimist

THIS IS THE END OF THE QUESTIONNAIRE.
THANK YOU FOR YOUR COOPERATION.

199 — Part I (P. 3)

TEACHER QUESTIONNAIRE

Directions

This questionnaire should be completed by all persons in the school in which students are tested who fall into either of the two categories below:

- a. teachers teaching one or more classes this year.
- b. anyone who spends more than five hours a week in guidance counseling.

PLEASE INDICATE ALL OF YOUR ANSWERS ON THE SEPARATE ANSWER SHEET THAT HAS BEEN GIVEN TO YOU.

Be sure that all your answer marks are black and that they completely fill the spaces. Do not make any stray marks on your answer sheet. If you erase, do so completely; an incomplete erasure may be considered as an intended response. MARK ONLY ONE ANSWER TO EACH QUESTION.

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D85P145

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32411413	322336 2	146 5332	12121213	66342118	45122113	41148122	33222222	21221112		11111122	42245 30	52 24
U4582059	79133171	98063107	00801110	0290	01					35423133	11425142	15525255
32435422	322323 3	337 2532	11122134	51321114	44224213	42238121	77722222	21122222		21122222	42233028	22111211
U4582059	66133171	38063107	00801110	0300	00					35423133	11435142	15525255
32435415	122333 2	13 73222	22122143	88241119	22221343	22117311	77212222	21222222		22112122	42127015	52111111
U4582059	67133171	28063107	00801110	0240	06					35432113	11435142	15425255
32425313	122316 2	11 71		44241117	23222346	46138321	77722222	22122222		22222222	42233012	35111111
U4582059	68133171	18063107	00801110	0260	04					35523133	11435142	15225255
33435113	342338 2	34 65332	11222141	44341116	33121243	22437113	77712222	21122112		11212222	42226 33	32 6
U4582059	69133172	58063107	00801110	0190	11					55423333	11234545	15223255
22332413	122318 1	225 7131	21222244	54341117	35125247	41137322	86212222	21122112		22212222	12237	

Towers

From: Equality of Educational Opportunity, Office of
Education; US Dept. of Health, Education, and
Welfare, (GPO: 1966).

Superintendent of Document Number: FS 5.238:38001

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9.0 Appendixes

9.1 Official correspondence

The following two letters asked for the cooperation of State and local officials in the conduct of the survey of public schools.

DEPARTMENT OF HEALTH, EDUCATION,
AND WELFARE, OFFICE OF EDUCATION,
Washington, D.C. 20202, June 10, 1965.

All Chief State School Officers:

Congress has instructed the Commissioner of Education, in section 402 of the Civil Rights Act, to conduct a survey of inequality of educational opportunity in public educational institutions by reason of race, color, religion, or national origin. We expect to carry out the survey in the fall of 1965, in order to be able to report to the President and the Congress by July 2, 1966, as required by the Act.

The survey will cover only a sample (about 5 percent) of schools rather than all schools, sampling more heavily schools in areas with many children from minority groups than in areas with few. It will attempt to deal with the problem of inequality by developing comprehensive statistical information and evaluation for items that educators agree are relevant to quality, such items as: conditions of classrooms, number of pupils per classroom, school equipment, books, libraries and other auxiliary facilities, teacher training and experience, guidance and counseling programs, health programs, curricula, school organization and administration, arts programs, athletic programs, remedial programs, community attitude toward education, expenditure per pupil. These items will be compared for schools serving primarily children of minority groups and those serving primarily children of the majority group.

In my judgment, it is necessary to assess the relative importance of these by means of aptitude and achievement results if the survey is to serve its purpose. This part of the survey will be voluntary; that is, substitutes will be found for those local school systems which do not wish to participate in the program. In the schools which agree to cooperate, pupils in the 1st, 3d, 6th, 9th, and 12th grades will be tested. The tests, together with questionnaires, will require approximately a full day in the upper grades and a shorter period at the lower levels.

The test results, of course, will be used solely to undertake statistical analysis of the relative importance of items affecting quality of education. They will not be used to compare achievement between systems or cities or States, nor will the results be reported by individual schools or school districts.

This survey will be done entirely at U.S. Government expense. Each State Department of Education will

receive, if it so desires, special tabulations of survey results for its State.

I hope you will be able to designate a member of your staff to assist this Office in developing suitable arrangements with local school systems very shortly because we must begin at once the task of selecting the sample of schools to be surveyed. I would appreciate your sending me his name by collect telegram as soon as he has been selected. If you have any question about this program, please feel free to call me collect (at area code 202—963-6212) or Alexander Mood (at area code 202—963-6966).

Your cooperation in carrying out this survey will be very much appreciated by all of us here in the Office who are responsible for carrying out our duties under the Act.

Sincerely yours,

FRANCIS KEPPEL,
U.S. Commissioner of Education.

Note.—Letter addressed to all Superintendents of schools selected for the survey.

DEPARTMENT OF HEALTH,
EDUCATION, AND WELFARE,
OFFICE OF EDUCATION,
Washington, D.C. 20202, July 13, 1965.

Dear Superintendent:

This letter is a request for your cooperation and assistance in carrying out a directive from the Congress of the United States. This directive requires the Commissioner of Education to conduct a nationwide survey of educational opportunities under the Civil Rights Act of 1964. The survey must be carried out with some speed in order to submit a report to Congress by July 2, 1966.

Your Chief State School Officer has appointed a representative, whose name appears below, to aid in this survey. Through the efforts of our staff and the State representative, a sample of schools has been drawn, sampling more heavily schools in areas with many children from minority groups than areas with few. The sample, which includes schools from your system, is not designed to be representative of the State or of the local system. As a result, no conclusions will be made about the State or local system; results will be presented only for regional and national levels. No individuals, schools, school districts, or States will be identified.

We need your cooperation in meeting the requirements of the law. This cooperation will involve several tasks:

1. Completion of a questionnaire for the system as a whole.
2. Completion of a questionnaire by the principal of each school in your system that falls into the sample.
3. Completion of a questionnaire by teachers and guidance counselors in each school in the sample.

4. A test battery and questionnaire to be administered by your teachers to all students in grades 1, 3, 6, 9, and 12 for the schools in the sample. This testing will occupy the major part of 1 school day for the upper grades and appropriately less time for the lower grades.

The questionnaires and tests will be mailed to you early this fall. The Educational Testing Service has been employed by this Office to carry out the survey; and they, working with the representative of your State education agency, will make the necessary arrangements with you.

Although participation in tasks three and four may be difficult in your system, we urgently request your full cooperation. Only in this way will the Congress and the American people have consistent information about the problems of providing maximum educational opportunity for all American children. In the questionnaires, questions about race, religion, and family background will be asked in order to illuminate issues raised in the Civil Rights Act. At the same time, it is made clear in the questionnaire that each student or teacher is fully free not to answer those questions to which he objects.

The sampled schools in your system include the high schools listed on the enclosed sheets, together with schools that feed into these high schools. Would you please check the information on the sheets and return them in the enclosed envelope. Unless we receive contrary information from you, we will assume upon receipt of these forms that your system will fully cooperate in the survey.

To complete plans for the survey, we need this information as soon as possible. If you have any questions, please call Mrs. Carol Hobson collect (area code 202—963-6124). We very much appreciate your assistance in this matter.

Sincerely yours,

A. M. Mood
Assistant Commissioner for
Educational Statistics.

Enclosures

cc:

State Representative:

9.2 Sample design

The data for the public school phase of the Educational Opportunity Survey were based on a stratified two-stage probability sample of the public schools in the United States and the District of Columbia.

In designing the sample and determining the manner in which the sample was to be drawn it was important, as in any other survey, to take into account both the purposes of the survey and the material and resources that were available. The survey was to be designed to provide estimates for a large number of school, pupil, and teacher characteristics for the Nation as a whole, separate estimates for urban and rural localities in major geographic regions of the United States, and more specifically, to provide reliable estimates of these characteristics so that comparisons could be

made between Negro or other minority students and white students.

The design of a multipurpose survey is usually the result of the compromise between the various factors involved in the design; such as, the objectives of the survey, the desired precision, budgetary limitations, etc. That is, no single factor uniquely determines the design. However, in this survey, the administrative decision to test approximately 900,000 pupils in selected grades in the public schools with roughly half of these pupils to be white and the other half to be nonwhite, played the most important part in determining the sample design.

A further factor that affected the sample design was the requirement, also for administrative reasons, that there would be no subsampling within a school; i.e., if a school was selected to fall in the sample, then all the students in the grades of interest in this survey would be included in the sample.

The fact that the main sample was to be conducted as a mail survey also had some influence on the sample design.

It was evident, from the above requirements, that the number of primary sampling units (psu's) to be included in the sample design should be maximized.

Among the more important materials that were available in the preparation of the sample design were the following:

(a) *Census data*.—Information was available from the 1960 Census on such characteristics of the population as the percentage nonwhite and school enrollment at the county level. (*County and City Data Book 1962*, Bureau of the Census, U.S. Department of Commerce.)

(b) *Listings of schools*.—In the spring of 1962 the U.S. Office of Education had conducted a survey of all public school plants in the United States (*National Inventory of School Facilities and Personnel*, OE-21016). It was possible to obtain from this inventory the number, grade span, and total enrollment by organizational level of the schools on the plantsite. The racial composition of the student enrollment was not shown. The various State Departments of Education publish *Educational Directories* and other statistical reports that provide information, in varying degrees, on the number of schools, school enrollment and racial composition; this information was used to update the information of the 1962 survey.

First stage.—The first step in the design of the

sample was to set up primary sampling units (psu's). As the elementary unit to be used in the sample was to be the school it was possible to use either the local school districts (there were 24,446 operating local school districts in the United States in the fall of 1965) or the 3,130 counties, parishes, and county equivalents as the psu's. The latter was chosen because (a) census and other descriptive statistics were more readily available for counties and (b) the county would provide a greater internal heterogeneity which, for technical sampling reasons, is more efficient.

The counties were then assigned to one of two groups, metropolitan or nonmetropolitan, according to whether they were included in a standard metropolitan statistical area (SMSA) or not. In New England where the metropolitan area consists of a group of contiguous cities and towns, those counties that appeared in more than one metropolitan area were placed in the metropolitan area that contained the largest percentage of the county population. The county equivalents, such as the independent cities in Virginia, that were not included in a standard metropolitan statistical area, were treated as counties. This procedure led to the formulation of 2,883 psu's of which 209 were metropolitan areas and 2,674 were counties located outside metropolitan areas.

The second step in the sample design was to stratify the groups by geographical location and by the percentage of nonwhites in the psu. The seven regions that were used and the States that are included in each region are shown in table 9.2.1. The boundaries for the percentage nonwhite categories were set at (1) 70 percent and over, (2) 30 to under 70 percent, (3) 10 to under 30 percent, and (4) under 10 percent. In the case of the counties outside the metropolitan areas the last category was further broken down into (4a) estimated nonwhite enrollment of 100 or more and (4b) estimated nonwhite enrollment under 100.

Prior to the selection of the psu's that were to be included in the sample it was necessary to solve the problem of how to allocate the sample between the two groups (within metropolitan areas and outside metropolitan areas) and between the seven regions. The allocation procedure that was used is described below. This procedure, though not optimum, is adequate, inasmuch as optimum allocation would have required more accurate knowledge of the population.

Estimates of nonwhite enrollment in grades 1, 3, 6, 9, and 12 were obtained for metropolitan

Table 9.2.1.—Regional classification of States used in Educational Opportunities Survey

Region I, New England---	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.
Region II, Mid-Atlantic---	Delaware, Washington, D.C., Maryland, New Jersey, New York, and Pennsylvania.
Region III, Great Lakes--	Indiana, Michigan, Ohio, Illinois, and Wisconsin.
Region IV, Plains-----	Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota.
Region V, Southeast-----	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.
Region VI, Southwest-----	Arizona, New Mexico, Oklahoma, and Texas.
Region VII, Far West and Rocky Mountain.	Alaska, California, Colorado, Hawaii, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

areas and outside metropolitan areas for each of the seven regions. It was found that about 62 percent of the total nonwhite enrollment was in metropolitan areas and about 38 percent outside of metropolitan areas. As the number of nonwhite students that were to be included in the sample was set at approximately 450,000, the number of nonwhite students that was allocated to metropolitan areas in the sample was, then, set at 279,000 ($450,000 \times 0.62$) and the number outside metropolitan areas at 171,000 ($450,000 \times 0.38$).

The allocation between regions was done in a similar manner. For example, a region's proportion to the total nonwhite metropolitan areas enrollment was determined. This proportion was then applied to the 279,000 obtained above to determine the number of nonwhite students to be included in the sample from the region's metropolitan areas.

It was possible in the metropolitan area group to apply a principle of optimum allocation that can be used when the size of the sample is fixed. This principle, as used in this survey, was to include in the sample with certainty all the psu's whose estimated nonwhite enrollment for the specified grades was equal to or greater than the total nonwhite enrollment for these grades in the region divided by the size of the sample to be used. By use of this principle, 21 of the largest metropolitan areas in the country were included in the sample with certainty.

The remaining psu's were ordered within their strata according to their estimated number of nonwhite students in 1960. After a random start, the psu's in each strata were selected in a systematic manner in accordance with the sampling ratios shown in table 9.2.2. Table 9.2.2 also shows the number of psu's in the universe and in the sample.

Second stage.—Within each county and metropolitan area that was selected in the first stage a listing of all public secondary schools with the 12th grade was obtained from the inventory of school plants. These listings were then sent to the various State departments of education where they were corrected, updated, and the percent nonwhite enrollment in each school was indicated; i.e., (1) 75.1–100.0 percent, (2) 50.1–75.0 percent, (3) 25.1–50.0 percent, (4) 10.1–25.0 percent, and (5) 0–10 percent. The secondary schools in each psu were then stratified into five groups defined by these proportions.

Selection of schools with 12th grade.—Inasmuch as both 12th grade enrollment for the high schools and total enrollment for all grades in all public schools in the psu were required, one for sample allocation and the other to be used in the inflation procedure, it was necessary to derive this information from the data that was available on the enrollment and grade span of the secondary schools. Since the grade spans for high schools varied from schools that had grades 6 through 12 to schools that had only grades 11 and 12, grade span coefficients were developed for each region and each grade span to obtain the necessary information about the estimated 12th grade and total enrollment in the psu's. For example, the following procedure was used to estimate total enrollment in a psu. The total regional enrollment in each grade, 1 through 12, was obtained from the U.S. Office of Education publication, *Statistics of Public Schools, Fall 1964* (OE-20007-64). The grade span coefficient to be used for high schools with grade span t through 12, where $t=6, 7, 8, 9, 10$, or 11, was computed by the following relationship.

$$\frac{\text{Total regional enrollment in grades 1 through 12}}{\text{Total regional enrollment in grades } t \text{ through 12}}$$

The results of these computations are shown in table 9.2.3. Separate coefficients were used for Alaska and Hawaii.

The enrollment of the high schools in a particu-

lar psu were then multiplied by the appropriate grade span coefficient and summed to get estimated total enrollments for each stratum and for the psu.

Grade span coefficients to be used to determine 12th-grade enrollment were computed by using the total regional enrollment in the 12th-grade in the numerator of the relationship used above in lieu of the total regional enrollment in grades 1 through 12.

By use of an allocation procedure similar to that used in the first stage and by taking into account the average nonwhite enrollment per school it was possible to determine the number of schools that would have to be included in the sample to attain the desired number of 12th-grade students in each of the second stage strata. Within each stratum the secondary schools were selected, after a random start, in a systematic manner, the sampling rate being determined by the number of secondary schools to be included in the sample from the stratum to the total number of secondary schools in the stratum.

In order to provide a general idea of the composition of the secondary schools in the sample, the total number of these schools in the psu's that were selected in the sample, the number of high schools that were selected in the second stage of the sample, and a sampling rate that is based on an average of the regional rates is shown in table 9.2.4. The stub identification of the metropolitan areas that appear in table 9.2.4 are based on approximations of the sampling rates that are shown in table 9.2.2. From the information in these two tables the following general statements regarding the approximate overall probability (the probability of selecting the psu times the probability of selecting the school) of a secondary school with the 12th-grade falling in the sample can be made:

1. In the largest metropolitan areas those secondary schools that had more than 25 percent nonwhite enrollment had about 1 chance in 5 of being selected in the sample; those schools with nonwhite enrollment between 10 and 25 percent had 1 chance in 10 of being selected; and those schools that were predominantly white had 1 chance in 20 of being selected.
2. In those metropolitan areas that were not included in the largest metropolitan areas and had 10 percent or more nonwhites in their population, the chances of selecting a predominantly nonwhite school was

Table 9.2.2.—Number of primary sampling units in the universe (N), in the sample (n) and the ratio (n/N) used in the first stage of the Educational Opportunities Survey

	Region											
	I			II			III			IV		
	N	n	n/N	N	n	n/N	N	n	n/N	N	n	n/N
A. METROPOLITAN AREAS												
Included in sample with certainty.....	4	4	1/1.00	4	4	1/1.00	3	3	1/1.00	2	2	1/1.00
Proportion nonwhite:												
30—under 70.....				4	4	1/1.00	4	4	1/1.00			
10—under 30.....				19	4	1/4.75	37	7	1/5.29	15	3	1/5.00
Under 10.....	10	2	1/5.00									
Total.....	14	6		27	12		44	14		17	5	
B. COUNTIES OUTSIDE METROPOLITAN AREAS												
Proportion nonwhite:												
70 and over.....										1	1	1/1.00
30—under 70.....				5	3	1/1.67	2	2	1/1.00	7	3	1/2.33
10—under 30.....				10	5	1/2.00	3	3	1/1.00	15	7	1/2.14
Under 10:												
100 or more nonwhite students.....	8	3	1/2.67	41	5	1/8.20	76	8	1/9.50	62	7	1/8.86
Less than 100 nonwhite students.....	37	3	1/12.33	48	4	1/12.00	261	12	1/21.75	498	10	1/49.80
Total.....	45	6		104	17		342	25		583	28	

	Region											
	V			VI			VII			Total		
	N	n	n/N	N	n	n/N	N	n	n/N	N	n	
A. METROPOLITAN AREAS												
Included in sample with certainty.....	4	4	1/1.00	2	2	1/1.00	2	2	1/1.00	21	21	
Proportion nonwhite:												
30—under 70.....	13	4	1/3.25							13	4	
10—under 30.....	30	6	1/5.67	8	3	1/2.67				46	17	
Under 10.....	4			17	3	1/5.67	27	5	1/5.40	129	28	
Total.....	51	14		27	8		29	7		209	66	
B. COUNTIES OUTSIDE METROPOLITAN AREAS												
Proportion nonwhite:												
70 and over.....	17	8	1/2.13	1	1	1/1.00				19	10	
30—under 70.....	338	85	1/3.98	26	9	1/2.89	3	3	1/1.00	381	105	
10—under 30.....	254	64	1/3.97	73	18	1/4.06	13	13	1/1.00	368	110	
Under 10:												
100 or more nonwhite students..	157	16	1/9.81	86	9	1/9.56	68	7	1/9.71	498	55	
Less than 100 nonwhite students.....	184	5	1/36.80	145	7	1/20.71	235	11	1/21.36	1,408	52	
Total.....	950	178		331	44		319	34		2,674	332	

Table 9.2.3.—Grade span coefficients used to estimate total enrollment in PSU's falling in sample

Grade span of high school	Region								
	I	II	III	IV	V	VI	VII	Alaska	Hawaii
6-12.....	2.337	2.010	1.999	1.977	1.974	2.072	1.990	2.290	2.065
7-12.....	2.419	2.356	2.383	2.328	2.386	2.506	2.368	2.831	2.456
8-12.....	2.909	2.861	2.891	2.822	3.009	3.155	2.896	3.614	3.082
9-12.....	3.762	3.596	3.640	3.567	4.001	4.190	3.713	4.790	3.845
10-12.....	5.167	4.912	4.989	4.835	5.951	6.168	5.237	6.765	5.219
11-12.....	7.926	7.712	7.751	7.388	10.322	10.673	8.961	10.931	7.995

about 1 to 5 and for predominantly white schools was about 1 to 36.

3. In those metropolitan areas that had less than 10 percent nonwhites the overall probability of selecting a school that had more than 10 percent nonwhite enrollment was approximately 1 in 5; the chances of a predominantly white school was 1 in 37.
4. The probability of a school with more than 10 percent nonwhite enrollment from those counties that had more than 30 percent nonwhite population was about 1 to 2 and for those schools with 10 percent or less nonwhite enrollment the probability was approximately 1 to 4.
5. For those counties where the proportion of nonwhite was 10 to under 30 percent predominantly nonwhite school's probability of selection was 1 in 3 and predominantly white school had a 1 in 10 chance of falling in the sample.
6. In those counties where the proportion of nonwhites was under 10 percent and there were 100 or more nonwhite students in the county, a predominantly nonwhite school had 1 chance in 24 and a predominantly white school had 1 chance in 48 of being selected. In those counties where there were less than 100 nonwhite students the probabilities were 1 in 54 that a predominantly nonwhite school would be selected and 1 in 113 that the predominantly white school would be included in the sample.

Selection of feeder schools.—For each secondary school selected in the sample, the lower grade schools which feed their students into the secondary school were identified by the local school administrators, together with the percent of the

feeder school students who would ordinarily attend the sampled high school. Each feeder school sending 90 percent or more of its students to a sampled secondary school was selected with certainty, and other feeder schools were selected with probability equal to the percent of students who go on to the sampled secondary school.

Of the five grades which were to be included in the survey, grade 1 was to include only half the fraction of students sampled in the other grades. Accordingly, a procedure was adopted which randomly eliminated half of the first grades which had been included in the sampled high school feeder school units.

9.3 Data collection and processing

The first step in data collection was to obtain the necessary voluntary cooperation of each of the Chief State School Officers (CSSO) and to request their help in getting the cooperation of local school administrators in their respective States. On June 10, 1965 the Commissioner of Education sent a letter to each CSSO in which he outlined the purpose and procedures of the survey. At the same time, he requested each CSSO to designate a member of his staff to serve as his State representative in assisting the Office of Education to make arrangements for data collection in the local school systems included in the sample. In another communication, the State agencies were requested to update the listing of high schools in the sampled counties, and to provide the information on the racial composition of these schools which was required by the sampling design. In some States, the necessary information was obtained from the published State Education Department's Statistical Reports and Directories of Public Schools.

Table 9.2.4.—Total number (M), number in the sample (m), and average sampling rates (m/M) of high schools in the second stage for sampled PSU's by percent nonwhite in high school and first stage sampling rate for metropolitan areas and proportion nonwhite for county PSU's

	Percent nonwhite in high school														
	75.1-100			50.1-75			25.1-50			10.1-25			0-10		
	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M
METROPOLITAN AREAS ¹															
Approximate first stage sampling rate:															
1/1.....	201	43	1/4. 67	59	15	1/3. 93	71	24	1/2. 96	105	17	1/6. 13	1,256	75	1/16. 75
1/3.....	55	26	1/2. 12	7	0	-----	20	0	-----	44	1	1/44. 00	321	14	1/22. 93
1/5.....	33	27	1/1. 22	4	4	1/1. 00	10	10	1/1. 00	27	20	1/1. 35	528	73	1/7. 23
Total in Metropolitan areas.....	289	96	-----	70	19	-----	101	34	-----	176	38	-----	2,105	162	-----
COUNTIES OUTSIDE METROPOLITAN AREAS ¹															
Proportion nonwhite:															
70 and over.....	17	17	1/1. 00	-----	-----	-----	1	0	-----	7	7	1/1. 00	17	16	1/1. 06
30—under 70.....	214	197	1/1. 08	4	4	1/1. 00	7	5	1/1. 40	4	2	1/2. 00	307	121	1/2. 54
10—under 30.....	149	143	1/1. 04	-----	-----	-----	14	14	1/1. 00	32	21	1/1. 50	405	114	1/3. 55
Under 10:															
100 or more nonwhite students.....	19	7	1/2. 71	1	1	1/1. 00	10	10	1/1. 00	26	18	1/1. 44	299	56	1/5. 34
Less than 100 nonwhite students.....	4	2	1/1. 75	1	1	1/1. 00	8	6	1/1. 33	7	2	1/3. 50	205	50	1/4. 10
Noncontinental United States.....	10	7	1/1. 43	-----	-----	-----	2	2	1/1. 00	3	1	1/3. 00	8	3	1/2. 66
Total in counties.....	413	373	-----	6	6	-----	42	37	-----	79	51	-----	1,241	354	-----
Total number of high schools.....	702	469	-----	76	25	-----	143	71	-----	255	89	-----	3,346	516	-----

¹ See table below:

	M	m
Total number of high schools in Metropolitan areas.....	2,741	349
Total number of high schools in counties.....	1,781	821
Grand total.....	4,522	1,170

As soon as permission to communicate with the local school systems was obtained from the respective States, the Assistant Commissioner for Educational Statistics sent a letter to each of the local school administrators of the systems with high schools included in the sample. These letters mentioned that clearance through the State agency had been accomplished, gave the name of the State representative, and outlined the purpose and procedures of the survey, including the fact that some questions would be asked about the race and family background of the students. At the same time, the sampled high schools in the particular system were listed, and the data on the feeder schools of these high schools needed to complete the sampling was requested from the superintendent.

The Educational Testing Service at Princeton, N.J., the contractor for the survey, appointed a number of consultants in the counties of the sampled high schools. They were available to answer questions and to advise on procedures and administration of the survey. In locations where a consultant who could be reached easily by telephone was not available, an ETS staff member was identified as the consultant. In all, 434 ETS consultants were appointed throughout the country.

As agreements were received from local schools systems to cooperate, notification was forwarded to the Educational Testing Service, ETS, which also was responsible for the printing of all questionnaires and the shipping of materials to local school systems, who obtained from local school officials the number of teachers and the number of pupils in grades 1, 3, 6, 9, and 12 in the sample schools so that the forms could be shipped.

In early September, as soon as copies of the survey books and manuals were delivered from the printers, a complete sample set was mailed to each superintendent who was expected to participate in the survey. The superintendent was informed at this time of the name, address and telephone number of the ETS consultant.

By September 10, the materials were being shipped by ETS to the schools. The ETS consultants were identified to each school principal on the shipping document which accompanied the survey materials. Delays made it impossible for all schools to administer the survey on the

scheduled dates, September 28 or 30, 1965, and superintendents were asked to move the test date into October if materials were late.

The tests and questionnaires were processed by ETS as they were received. In mid-November, ETS listed the school systems and schools from which they had received completed test materials. The Office of Education then made a followup mailing requesting completed superintendents' and principals' forms where they were missing. Principal and superintendent questionnaires were sent during this recall to all school systems which had expressed some reluctance to participate in the survey, as well as to the systems which had not returned shipped materials they had agreed to administer. In an effort to maximize the returns from this recall, several questions that had been cited as being controversial were omitted from the followup principal and superintendent questionnaires. A second followup was later made of an 19 percent sample of the nonresponding principals. The details of this phase are discussed in the section on the treatment of nonresponse.

The survey materials were administered in most schools on September 28 or 30, 1965. In some locations, delays in the receipt of survey materials necessitated later administration dates. The principal, superintendent, and teacher instruments were self-administered. The pupil tests and questionnaires were administered in the classrooms by the teaching staff of each school. Six separate manuals for administration were prepared by the contractor: grades 1, 3, 6, 9, 12 and a school coordinators manual. Each of the grade-level manuals gave detailed instructions for giving the survey at that grade, including verbatim instructions to pupils. The coordinators manual gave detailed instructions for administering the survey and handling the survey material in a school. In addition, the ETS consultants, mentioned above, were available for questions about the survey administration. All of the survey instruments, with the exception of the followup principal and the superintendent questionnaires, had machine scorable answer sheets. In the case of the teacher, principal, and 6, 9 and 12 grade instruments, answer sheets separate from the survey booklet were provided. In grades one and three, responses were marked directly onto the accordion type booklets which

were used in these grades, and were then machine scored: This procedure for the youngest pupils eliminated the possible errors caused by transcribing responses onto a separate sheet. Each pupil recorded his own responses on the answer sheets, with the exception of the grade one questionnaire and several questionnaire items in grade three which were to be filled in by the teacher. The followup principal and superintendent questionnaires were not machine scored, but the responses were keypunched from the questionnaire.

ETS was responsible for the processing of the completed survey materials. This involved scoring tests and transcribing the information from the instruments which would be used in the analysis, onto magnetic tape. Separate procedures were developed for the machine scorable instruments and the key punched instruments. The principal elements of this phase involved—

1. Matching the individual instruments with the appropriate school code,
2. Resolving response errors, such as multiple responses to the same item, and
3. Quality control in the scoring of test responses and the transcription of all responses onto tape.

1. Because the analysis plans required that the responses of students, teachers, and principals and superintendents from the same school be brought together as related information, it was necessary to identify each respondent with a code number unique to each school. At the same time, however, in securing the participation of the sampled systems in the survey, it was promised that no names of schools, systems, or States would be used in the report of the survey, and that students and teachers would not be asked to identify themselves on the survey instruments. Consequently, it was necessary to use the serial numbers which were assigned to each individual survey answer sheet to match each respondent to his school. If a respondent failed to correctly give his serial number, controls were established to reject the respondent's instrument for clerical resolution. The instrument was then repossessed and correctly matched.

A small number (1.06 percent) of the instruments returned were not incorporated in the analyses, for the following reasons:

- a. The information from the school relating the serial number of the survey materials to the school code was not received with

completed survey materials. As a result, all instruments for a particular grade in the school were unusable. Efforts were successful in many cases to recover the necessary information and resolve the matching problem.

- b. Individual students would misgrid their serial numbers and would be rejected in the transcribing process. This group, comprising about 40 percent of the unresolvable instruments were rejected individually from many schools in the survey (one or two per class in their school).

The following table shows the results of the computer processing data collection phase.

Grade	Instruments returned	Instruments processed	Instruments not resolved	Percent instruments not resolved
1-----	76, 468	76, 133	335	0. 4
3-----	136, 692	135, 750	942	. 7
6-----	128, 078	125, 170	2, 908	2. 3
9-----	135, 010	134, 030	980	. 7
12-----	98, 264	97, 660	604	. 6
Teacher-----	67, 902	66, 826	1, 076	1. 6
Principal ¹ -----	4, 090	4, 081	9	. 2
Total-----	645, 504	639, 650	6, 854	1. 06

¹ There were 131 other principal questionnaire answer sheets which were not incorporated in the analysis. These answer sheets were included without identifying serial numbers in the specimen kits of survey materials sent by ETS to the sampled superintendents, which when returned, could not be used. Undoubtedly, many of these principals responded again to the followup mailing, but it is likely that the group accounts for a large fraction of the schools which administered student tests, but had no survey record of principal's information.

2. The procedure used by ETS for scoring the test portion of the survey and for transcribing the item responses of the questionnaire was similar. In cases where there was more than one response detected by the scoring machine, the darkest mark was chosen as the choice desired by the respondent: the logic behind this being that in most cases the lighter mark by the respondent was an initial response, later insufficiently erased, and the darker mark made as a final choice.

Multiple responses on the principal and superintendent questionnaires which were to be keypunched were edited on an individual basis.

3. Quality control procedures were established, by ETS quality control personnel, to ascertain that the following points could be assured:

- (a) All responses recorded on the instrument were correctly transcribed by the scoring machine onto magnetic tape.
- (b) Test sections were correctly scored.

- (c) The two sides of an answer sheet for a particular respondent were correctly matched.
- (d) All instruments were accounted for.
- (e) The respondent was correctly matched with the school information.
- (f) Conversion factors for scoring sections were correctly applied.

The procedures involved manually scoring every 1,000th answer sheet and checking the item responses and scores with the information recorded on tape for that answer sheet.

9.4 Computation of estimates

The estimated totals, averages, and proportions reported in section 2 of the report have been developed by the use of a ratio estimation procedure. This procedure was carried out for each of the five racial composition groups in each of the primary sampling units. These weighted area statistics were then combined so as to produce the desired regional and national estimates.

Estimates of characteristics from the sample for a given racial composition high school-feeder school system in a given primary sampling unit were produced by weighting the count from the sample by the following inflation factor,

$$W_{ijkl} = \frac{N_i}{\sum_i N_{ij}} \cdot \frac{r_{ijk}}{\sum_i r_{ijkl}}, \quad (1)$$

where N_i is the 1960 Census population count of all school age persons in the i -th first stage stratum,

N_{ij} is the 1960 Census population count of all school age persons in the j -th psu in the sample in the i -th stratum,

r_{ijk} is the estimated 1964 enrollment, grades 1 through 12, for all public schools of racial composition k in the j -th psu in the sample in the i -th stratum, and

r_{ijkl} is the estimated 1964 enrollment of the l -th sampled high school-feeder school system of racial composition k in the j -th psu in the sample in the i -th stratum.

The estimates of r_{ijk} and r_{ijkl} were arrived at in a manner similar to the method of estimating enrollments from high school grade spans and enrollment figures that were described in the previous section on the allocation of the sample.

Adjustment for nonresponse of the high school-feeder school systems that did not return both

principal and student questionnaires was accomplished by a calculation which assumes that respondents within a particular area and racial composition represent the nonrespondents in that segment as well.

The inflation factor for the 12th-grade schools was adjusted according to the following rules:

(a) When some of the sampled schools of racial composition k in the j -th psu did not return the questionnaire, the factor $\sum r_{ijkl}$ in equation (1) was modified to $\sum r_{ijkl'}$, where l' represents schools that responded, and

(b) When no returns were received from any school of racial composition k in the j -th psu, information from schools of racial composition k in similar psu's in the same stratum or adjacent stratum was paired with the j -th psu and appropriate changes were made in the elements of equation (1). In essence, this technique may be described as a collapsed psu procedure.

Now, if all the feeder schools at the lower grade levels responded, the inflation factor for these schools would be the same as the inflation factor of the high school they feed. Then, in the case of nonresponse for the feeder schools the inflation factor, the inflation factor for the 12th-grade school which the lower grade students would normally enter was multiplied by the ratio of the number of feeder schools at this grade level in the sample to the number of these schools that responded.

No allocations or imputations were made for item nonresponse. Averages were calculated only on the schools who responded on the item. Proportions were calculated on all schools, with the proportion not responding calculated as a separate category.

9.41 Definition of estimates

The formulas used to obtain the principal estimates reported in section 2 of the report are shown below.

Let W_{ijkl} be the inflation factor with the l -th school of racial composition k in the j -th psu in the sample in the i -th stratum,

R_{ijkl} be the number of students of a particular race or ethnicity in the l -th school in the sample in the j -th psu,

X'_{ijkl} equal 1 if the characteristic of interest is present in the l -th school in the sample in the j -th psu and 0 if it is not present,

X''_{ijk} equal the value of the characteristic of interest in the l -th school in the sample in the j -th psu, and

P_{ijk} equal the proportion of units having a certain characteristic in the l -th school in the sample in the j -th psu.

Then, the estimate of the percentage of pupils of a particular race or ethnicity attending schools with a certain characteristic in the smallest weighting area was produced by using the formula

$$\frac{\sum W_{ijk} X_{ijk} R_{ijk}}{\sum W_{ijk} R_{ijk}} 100. \quad (2)$$

The estimate of the average school characteristic for pupils of a particular race was obtained by using

$$\frac{\sum W_{ijk} X''_{ijk} R_{ijk}}{\sum W_{ijk} R_{ijk}} \quad (3)$$

The estimate of the percent of a certain characteristic in the schools attended by the average student of a particular race was obtained by using

$$\frac{\sum W_{ijk} P_{ijk} R_{ijk}}{\sum W_{ijk} R_{ijk}} 100. \quad (4)$$

In order to provide the reader with a better understanding of these formulas and concepts, the procedures used to obtain the above measurements are illustrated in the example shown below. For simplicity, we shall assume that there are only four high schools in the psu, that $W_{ijk}=1$ for each school, and that the schools have the following characteristics:

	School								Total	
	A	B	C	D						
Acres on plantsite.....	3	5	4	2						
Teachers..... Pupils.....	Race									
	W	N	W	N	W	N	W	N	W	N
	3 60	3 60	6 120	0 0	1 20	2 40	0 0	5 100	10 200	10 200

Then, to determine the percent of Negro pupils who attend schools that have white teachers we use formula (2), setting $X'_{ijk}=1$ if the school has white teachers and $X'_{ijk}=0$ if the school does not

have any white teachers. R_{ijk} will equal the number of Negro students in the l -th school. This results in

$$\frac{(1 \times 1 \times 60) + (1 \times 1 \times 0) + (1 \times 1 \times 40) + (1 \times 0 \times 100)}{(1 \times 60) + (1 \times 0) + (1 \times 40) + (1 \times 100)} = \frac{100}{200} = .50.$$

This means that 50 percent of the Negro pupils in this psu attend high schools that have white teachers.

An estimate of the acreage in the plant sites

of schools attended by the average Negro pupil is obtained by using equation (3) and letting X''_{ijk} equal the number of acres in the l -th school. That is,

$$\frac{(1 \times 3 \times 60) + (1 \times 5 \times 0) + (1 \times 4 \times 40) + (1 \times 2 \times 100)}{(1 \times 60) + (1 \times 0) + (1 \times 40) + (1 \times 100)} = \frac{540}{200} = 2.7 \text{ acres.}$$

An estimate of the percent of white teachers in schools attended by the average Negro pupil is obtained by using equation (4) and letting

P_{ijk} equal the percent of white teachers in the l -th school.

$$\frac{(1 \times .50 \times 60) + (1 \times 1.00 \times 0) + (1 \times .33 \times 40) + (1 \times 0.00 \times 100)}{(1 \times 60) + (1 \times 0) + (1 \times 40) + (1 \times 100)} = \frac{43}{200} = .22.$$

An estimate of the percent of white teachers in schools attended by the average white pupil is

$$\frac{(1 \times .50 \times 60) + (1 \times 1.00 \times 120) + (1 \times .33 \times 20) + (1 \times 0.00 \times 0)}{(1 \times 60) + (1 \times 120) + (1 \times 20) + (1 \times 0)} = \frac{157}{200} = .79.$$

The concept of "whites in same county" as pupils of a specific minority group in that county may be formulated as

$$\frac{\sum W_{ijk} R_{ijk} Y_{ij} \text{ (white)}}{\sum W_{ijk} R_{ijk}} \quad (5)$$

where Y_{ij} (white) is the value for the white students in the j -th psu in the i -th stratum that was obtained by using formulas (2), (3), or (4).

Using the previous example, the assumption is now made that schools A and B are in county I and that schools C and D are in county II.

Then, the estimates of the average acreage in the plantsites of schools attended by white students are, using (2):

$$\text{County I: } Y_{x_I'} = \frac{(1 \times 3 \times 60) + (1 \times 5 \times 120)}{60 + 120} = 4.3 \text{ acres.}$$

$$\text{County II: } Y_{x_{II}'} = \frac{(1 \times 4 \times 20) + (1 \times 2 \times 0)}{20 + 0} = 4.0 \text{ acres.}$$

In county I there are 60 Negro pupils and in county II there are 140 Negro pupils, a total of 200. Then by (5),

$$\frac{[(1 \times 60) + (1 \times 0)](4.3) + [(1 \times 40) + (1 \times 100)](4.0)}{(1 \times 200)} = 4.1 \text{ acres.}$$

This measurement of 4.1 acres may then be considered as an index of the average size of school plantsites for white pupils in the same area as Negro pupils. If there was a second minority group in the area, say Mexicans, then the same procedure would have been followed as above except that the averages for the white pupils would have been weighted by the proportion of Mexican pupils in each of the counties. The resulting index would then be identified as the average size of school plantsites for white pupils in the same area as Mexican pupils.

To determine the index of the percent of white pupils in the same area as Negro pupils that attend schools with white teachers, the percent

of the white students for each of the counties is obtained by using (2).

$$\text{County I } Y_{x_I'} = \frac{(1 \times 1 \times 60) + (1 \times 1 \times 120)}{60 + 120} = 1.00$$

$$\text{County II } Y_{x_{II}'} = \frac{(1 \times 1 \times 20) + (1 \times 0 \times 0)}{20 + 0} = 1.00$$

Then, by (5), we get

$$\frac{(60)(1.00) + (140)(1.00)}{200} = 1.00$$

A summary of the values of the measurements discussed in this section for the illustrative example is shown in table 9.4.1.

Table 9.4.1.—Various measurements of school and pupil characteristics from example illustrating the concept of "whites in the same county"

	Pupils in area of counties I and II				Pupils in county I			Pupils in county II		
	All	White	Negro	Index ¹	All	White	Negro	All	White	Negro
Average number of acres in school plantsite....	3.5	4.3	2.7	4.1	4.0	4.3	3.0	2.8	4.0	2.5
Percent of pupils in schools with white teachers.....	75	100	50	100	100	100	100	38	100	29
Percent of pupils in schools with Negro teachers.....	70	40	100	80	50	33	100	100	100	100
Percent of white teachers in school of average pupil.....	50	79	21	48	75	83	50	12	33	9
Percent of Negro teachers in school of average pupil.....	50	21	79	52	25	17	50	88	67	91

¹ This index is identified as W(N) in the tables in section 2 of the report.

9.42 Definition of special measures

Seventeen special measures or indexes used in presenting some of the survey data in the tabulations of section 2. They were calculated from replies on the questionnaire sent to school principals as follows:

SM 1.—Pupils per room obtained by dividing the number of pupils in the school (P 40) by the number of rooms in the school (P 11).

SM 2.—Pupils per teacher obtained by dividing the number of pupils in the school (P 40) by the number of teachers in the school (P 26).

SM 3.—Percentage of makeshift rooms obtained by dividing the number of makeshift rooms (P 12) by the total number of rooms (P 11) and multiplying by 100.

SM 4.—Percentage of the following special rooms or fields in the school: auditorium, cafeteria, gymnasium, athletic field (P 13).

SM 5.—Percentage of the following three kinds of science laboratories in the school: biology, chemistry, physics (P 13).

SM 6.—Number of volumes in school library measured in hundreds of volumes (P 13b).

SM 7.—Number of library volumes per pupil obtained by dividing number of volumes (P 13b) by number of pupils (P 40).

SM 8.—One-half of the sum of the fraction of full-time art teacher at the school and the fraction of full-time music teacher at the school. Then, if a school had a music teacher two days a week (.40 full time) and as art teacher one day a week (.20 full time), this measure for that school would be $\frac{1}{2}(.40 + .20) = .30$ (P 30, 31).

SM 9.—Percentage of the nineteen extracurricular activities listed in question P 90 that are available at the school (student government, newspaper, annual, boys' interschool athletics, girls' interschool athletics, boys' intramural athletics, girls' intramural athletics, band, chorus, honor society, subject clubs, chess club, hobby clubs, drama, debate, social dances, military cadets, service clubs, religious clubs).

SM 10.—Percentage of seven special classes for exceptional children listed in question P 94 that are available at the school, (mentally retarded behavior, non-English speaking, gifted, special talent, speech impairment, physically handicapped).

SM 11.—Percentage of the six kinds of curriculum listed in question P 78 available at the

school (college preparatory, commercial, general, vocational, agriculture, industrial arts).

SM 12.—An index of the severity of behavior problems in the school was obtained by giving a numerical value to the four responses in P 48 as follows: severe, 0.75; moderate, 0.50; slight, 0.25; none 0, and then finding the average of these values over the seven problems listed in P 48 (vandalism, impertinence, racial tension, theft, physical indolence against teacher, narcotics, intoxicants).

SM 13.—Percentage of the seven kinds of special personnel named in P 32 through P 38 available at the school, (speech corrections, psychologist, remedial reading, guidance counselors, librarians, nurses, attendance officers).

SM 14.—Total percent of pupils transferring in and out of school the preceding year (P 44, 45).

SM 15.—Percentage of boys dropping out of school plus the percentage of girls dropping out of school (P 46, 47). A more meaningful index would be obtained by taking half of this number and interpreting the result as an average percentage of pupils of both sexes dropping out.

SM 16.—Percentage of college representatives visiting the school who represented predominantly Negro colleges (P 53, 54).

SM 17.—Percentage of the three kinds of texts (intelligence, achievement, interest) named in P 22, 23, and 24 used in the school.

9.5 Sampling variability

In all statistical surveys, whether they are based on complete enumeration or on samples, there is always the potentiality of errors and inaccuracies. In sample surveys, the total survey error includes both sampling and nonsampling error. The latter may be termed measurement error and includes such errors, among others, as ambiguities in definitions and in the questionnaire, failure to obtain required information from respondents, obtaining inconsistent information, mistakes in clerical coding and editing, errors occurring during the machine processing operation, and tabulation errors.

Since the estimates from this survey are based on a sample rather than on a complete census of principals, teachers, and pupils, they will differ somewhat from figures which would have been obtained from a complete enumeration using the same schedules, instructions, and procedures. If repeated samples of the same size were selected

from the population, some of the sample estimates would be smaller than the population value and some would be larger. The sampling error is a measure of the scatter of these sample estimates from the population value. The standard error of the estimate is used to measure this sampling variability; that is, of the variations that occur by chance because a sample, rather than the whole population, is surveyed.

As calculated for this report, the standard error also partially measures the effect of response errors but does not measure any systematic biases in the data. The chances are about 68 out of 100 that an estimate from the sample would differ from a complete census figure by less than the standard error. The chances are about 95 out of 100 that the difference would be less than twice the standard error.

For estimates of statistics representing relatively small proportions of the population, the major component of the total survey error tends to be the sampling error. As the sample proportions approach the level of the total population, the standard error decreases relative to the size of the estimate. This is not necessarily true of the non-sampling errors and they tend to assume a relatively larger role in the total survey error. In general, most data in this report regarding minority groups, except Negroes, are subject to high sampling variability and should be treated as approximate rather than precise measures.

As of this writing, approximate standard errors have only been computed at the national level for secondary school estimates. It is anticipated that the standard error for elementary school estimates will be of the same relative magnitude as those for secondary schools. Table 9.5.1 shows approximate standard errors for estimated national percentages of secondary school pupils attending schools with a particular characteristic. Separate standard errors have been calculated and are to be used with the estimated percentages derived for white pupils (W), Negro pupils (N), and whites in the same county as Negroes W(N). For example, in table 2.21.4, in the United States, the percentage of white pupils in schools whose age is less than 20 years is shown as 53 percent; for Negro pupils, 60 percent; and for whites in the same county as Negroes, 50 percent. The approximate standard error for the value for the white pupils, by linear interpolation from table 9.5.1, is 3.9. This means that if a complete enumeration were conducted under identical circumstances the

chances are 2 out of 3 that the value of the percentage of white pupils in secondary schools less than 20 years old would lie between 49.1 and 56.9 percent. The standard error for Negro pupils turns out to be 4.8 for whites in the same county as Negroes, 7.0.

Table 9.5.1.—Approximate standard errors of estimated national percentages of white pupils (W), Negro pupils (N), and whites in the same county as Negroes (W(N)) who attend secondary schools having a particular characteristic

[Range of 2 chances out of 3]

Estimated percentage	Race of pupil		
	W	N	W(N)
2 or 98.....	1.3	1.0	2.1
5 or 95.....	1.6	1.5	3.0
10 or 90.....	2.0	2.2	4.2
25 or 75.....	3.0	4.3	6.0
50.....	4.1	5.2	7.0

To determine whether the difference between the white and Negro percentages for the same characteristic is statistically significant at the 5 percent level the following procedure should be used. Determine the average of the two percentages by summing them and dividing by two. Enter table 9.5.2 with this value. Obtain the difference between the two percentages. If the difference between the two percentages is greater than twice the standard error shown in the body of the table under column (W-N) for the average percentage, then the difference between the percentages is statistically significant at the 5 percent level.

Illustration: Using the same data as above, the average percentage of white pupils and Negro pupils attending secondary schools less than 20 years old is $(53+60)/2=56.5$ percent. The approximate standard error for 56.5 percent from table 9.5.2, by linear interpolation in the column (W-N), is 5.2. Multiplying this value by 2 we obtain 10.4. The difference between the white and Negro percentages is 7. Since 7 is less than 10.4, the difference between the percentages is not significant at the 5 percent level.

A similar procedure is used to test the significance of the difference in percentages between whites in the same counties as Negroes and Negroes except that the column W(N)-N is used.

Table 9.5.2.—Approximate standard errors of averages of estimated national percentages for use in determining significance of differences of percentages of white and Negro (W-N) secondary pupils and whites in the same county as Negroes and Negro (W(N)-N)

[Range of 2 chances out of 3]

Average of percentages	(W-N)	W(N)-N
2 or 98.....	1.5	0.5
5 or 95.....	2.0	1.0
10 or 90.....	3.0	1.7
25 or 75.....	4.3	3.5
50.....	5.5	5.2

Approximate standard errors for specific characteristics of secondary schools attended by the average white pupil, the average Negro pupil and the average white pupil in the same county as Negroes are shown in table 9.5.3. In addition, the table also includes the standard errors for differences between school characteristics for the average white and Negro pupils, and for differences between school characteristics for the average white pupil in the same county as Negroes, and for the average Negro, W(N)-N.

Illustration: In table 2.21.4, the average number of white pupils per teacher is shown as 22 and the average number of Negro pupils per teacher as 26. The approximate standard error for the average white pupil as shown in table 9.5.3 for the school characteristic "Pupils/teacher" is 0.82 and for the average Negro pupil as 1.06. This is interpreted as meaning that in a complete census count the probability is 2 out of 3 that the value of the white pupil-teacher ratio in secondary schools would lie between 21.18 and 22.82 and that the Negro pupil-teacher ratio in secondary schools would lie between 24.94 and 27.06.

To determine whether there is a statistically significant difference between the white and Negro averages for pupil-teacher ratios, a difference of 4, the standard error shown in the W-N columns of table 9.5.3 for pupils/teachers is doubled. This value, 1.94 (0.97×2), is less than the difference of 4, indicating a statistically significant difference.

A rough approximation of the standard errors of regional estimates may be obtained by multiplying the national values obtained from tables 9.5.1, 9.5.2, and 9.5.3 by the appropriate regional factors found in table 9.5.4. For example, in table 2.21.4, the average number of white pupils per teacher in the nonmetropolitan South is shown

to be 20. The approximate standard error for the average white pupil for this characteristic (pupil/teacher) as shown in table 9.5.3 is 82. Multiplying this value by the factor in table 9.5.4, we obtain ($0.82 \times 1.6 = 1.31$), 1.31 as the approximate standard error for this statistic.

Estimation of sampling errors.—A "random group" method was used to estimate the variances. This method randomly distributes all the n observations of a characteristic x into t mutually exclusive and exhaustive groups, each containing (n/t) elements, under a sample design which is essentially the same as the overall design used in the survey. If the means of these groups are denoted by $\bar{x}_1, \bar{x}_2, \dots, \bar{x}_j, \dots, \bar{x}_t$, then,

$$\bar{x} = \sum_{j=1}^t \bar{x}_j / t.$$

The variance of $\bar{x}$ can be estimated by

$$\frac{\sigma^2}{x} = \sum_{j=1}^t (\bar{x}_j - \bar{x})^2 / t(t-1).$$

In order to provide enough cases in each random group to provide a reasonable stable estimate and to simplify the variance calculations, the number of regions for the metropolitan areas was reduced to five and the number for nonmetropolitan areas to three corresponding to the regions used in the tables and text of section 2. In the latter case, from a list of counties ordered by stratum within region, each responding county was assigned to one of ten groups in a systematic manner following a random start. For the former, responding metropolitan areas, chosen with a probability other than unity, were divided in a similar manner into four groups. The individual schools in the metropolitan areas that were selected with certainty were likewise assigned in a random manner to these four groups. The reduction in the number of regions probably results in a slight overstatement of the variance.

The variances for U.S. estimates were obtained by combining the variances for each of the regions with appropriate weights.

The approximate standard errors that are shown in tables 9.5.1 and 9.5.2 are based upon a generalization of the standard errors that were computed for several items from the secondary school principal's questionnaire. Investigation of the relationship of these values and characteristics led to the development of regression curves which were used to produce the tables of standard errors for this report.

Table 9.5.3.—Approximate standard error of national estimates of selected school characteristics for the average white pupil (W), Negro pupil (N), white pupil in same counties as Negroes (W(N)), and of national estimates of the difference between selected school characteristics of the average white and Negro pupils (W-N), and of the average white pupil in the same counties as Negroes and the average Negro pupil, W(N)-N

[Range of two chances out of three]

School characteristics	W	N	W(N)	W-N	W(N)-N
SM-1, Pupils/room.....	1.28	2.09	0.98	1.94	1.74
SM-2, Pupils/teacher.....	.82	1.06	.64	.97	.71
SM-3, Ratio of makeshift rooms.....	.94	1.30	.88	1.31	1.38
SM-4, Specialized rooms and fields.....	1.25	1.40	2.28	1.62	2.18
SM-5, Science laboratory facilities.....	1.35	2.36	1.13	2.72	2.30
SM-6, Number of volumes in library (in 100's).....	3.03	2.58	4.24	3.69	4.10
SM-7, Library volumes/student.....	.37	.40	1.85	.48	.55
SM-8, Special teachers (art, music).....	1.82	1.60	1.98	2.01	1.40
SM-9, Extracurricular activities.....	1.37	.71	.89	1.22	.57
SM-10, Separate classes for special cases.....	1.63	1.45	3.25	1.49	2.78
SM-11, Comprehensiveness of curriculum.....	1.16	2.36	2.70	2.52	.93
SM-12, Problems in school.....	.50	.97	.69	1.01	.79
SM-13, Number of specialized teachers and correctional personnel.....	1.02	.85	.89	1.24	.99
SM-14, Transfers.....	.32	.37	.45	.51	.62
SM-15, Dropouts, both sexes.....	.32	1.14	.51	1.03	1.01
SM-16, Proportion of college representatives from Negro colleges.....	1.30	22.12	8.28	19.07	25.65
SM-17, Testing: Number of types of tests given.....	1.57	3.32	2.18	2.81	2.21
P-8, Number of days in school year.....	.54	.79	.20	.95	.76
P-11, Number of rooms.....	.87	1.15	1.31	1.27	.88
P-15, Percent receiving free milk.....	1.40	1.97	1.72	2.50	.66
P-27, Number teachers leaving.....	.93	.56	.66	1.17	.65
P-40, Enrollment.....	71.28	51.00	102.08	54.38	31.69
P-42, Percent daily attendance.....	.17	.41	.17	.33	.37
P-43, Percent white students.....	.49	1.83	6.22	2.01	5.79
P-49, Percent graduates in college.....	1.58	1.16	2.75	2.62	1.35
P-71, Principal's salary (in 100's).....	1.97	4.59	4.28	2.57	1.45
P-91, Number hours in homework.....	.10	.10	.10	.10	.10

Table 9.5.4.—Factors for obtaining approximate standard errors of regional estimates from standard errors of national estimates

Region	Estimate				
	W	N	W(N)	W-N	W(N)-N
Nonmetropolitan North and West.....	2.0	2.7	2.4	1.85	1.13
Nonmetropolitan South.....	1.6	1.5	1.2	1.32	1.55
Metropolitan Southwest.....	4.3	3.1	3.8	2.56	3.13
Metropolitan Northeast.....	2.0	2.6	1.8	2.30	2.25
Metropolitan Midwest.....	1.7	1.9	1.5	2.26	2.95
Metropolitan South.....	3.5	2.1	2.2	3.26	3.01
Metropolitan Southwest.....	4.8	3.0	3.5	2.98	3.69
Metropolitan West.....	4.6	3.3	2.7	1.37	1.58

9.6 Response rate

Approximately 70 percent (818) of the principals of the 1,170 high schools that were selected in the sample returned usable questionnaires and 37 percent of the high schools (780) returned pupil questionnaires and tests. For only 59 percent (689 out of 1,170) of the schools were both principal and pupil questionnaires available. Serious errors were made in the administration and mailing of forms which prevented positive identification of many of the principals questionnaires and which made it impossible to prepare an accurate list of nonrespondents for followup. These difficulties account for most of the loss of principals' questionnaires for schools which did administer the survey instruments. One of the more serious consequences of this error was the loss of detailed information regarding the racial composition of the student body inasmuch as only the principal questionnaire (item P-43) requested the percentage of white students in the school whereas the students were asked to identify themselves in one of the six racial and ethnic groups used in the body of this report. Approximately 74 percent (2,377) of the 3,223 principals of elementary schools in the sample that had a sixth grade returned their questionnaires. Details of the response returns by areas and by percent nonwhite in the high schools are shown in tables 9.6.1, 9.6.2, 9.6.3 and 9.6.4.

The effect of the refusal of an individual to answer a questionnaire usually leads to biased estimates. In order to obtain some measure of the extent to which nonresponse was a source of bias in this survey, a subsample of 66 of the 352 secondary schools for which there was no principal's questionnaire was randomly selected and surveyed. Statisticians in the Office of Education who were familiar with the kinds of records kept in State departments of education

selected a set of items from the principal's questionnaire which they were confident could be answered by all the State departments. The information for these items was obtained for each of the 66 schools from the State department files on these schools. Estimates of nationwide average high school characteristics for whites and nonwhites were then calculated by letting the subsample of 66 schools represent the group of 352 schools for which there was no information and combining them with the questionnaires of the 818 principals that had originally responded. These estimates, along with those used in this report which were generated from the sample of 689 schools that had both principal and student questionnaires, are shown in table 9.6.5.

It was found that 5 of the 16 items in the table showed a significant difference. Three of them showed that the data used in the report (689 schools) overstated the access of nonwhites to the item; these three items are: School accreditation; gymnasium; and principals having a master's degree. For two items of the five (use of national teacher examination, and agriculture curriculum) access of nonwhites to the item was understated by the report.

If one averages the percentages in table 9.6.5 over the 16 items, he finds that the 689 schools used in the report show an average availability for whites of 74.0 percent and for nonwhites of 72.4 percent. The corresponding averages using the more complete data are 75.4 and 73.1 percent.

Thus, the information derived from this followup examination of 66 schools indicates that the overall availability of school characteristics given in this report is understated by about 1 percentage point on the average and also that the difference between the availability to whites and nonwhites is understated by about 1 percentage point on the average.

Table 9.6.1.—Number of high schools in sample (M), number returning both principal and student questionnaires (m) and response rate (m/M) in sampled PSU's by region, urbanization, and percent nonwhite in high school

	Percent nonwhite in high school																	
	75.1-100.0			50.1-75.0			25.1-50.0			10.1-25.0			0-10.0			Total		
	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M
United States.....	469	271	0.58	25	15	0.60	71	45	0.63	89	59	0.66	516	299	0.58	1,170	689	0.59
Nonmetropolitan.....	373	210	.56	6	3	.50	37	23	.62	51	36	.71	354	190	.54	821	462	.56
North and West.....	24	18	.75	5	2	.40	29	17	.59	30	22	.73	96	61	.64	184	120	.65
South.....	293	60	.55	0	0	.00	1	1	1.00	6	6	1.00	212	110	.52	512	277	.54
Southwest.....	56	32	.57	1	1	1.00	7	5	.71	15	8	.53	46	19	.41	125	65	.52
Metropolitan.....	96	61	.64	19	12	.63	34	22	.65	38	23	.61	162	109	.67	349	227	.65
Northeast.....	8	6	.75	8	5	.63	19	14	.74	12	7	.58	50	42	.84	97	74	.76
Midwest.....	9	5	.56	8	6	.75	9	4	.44	14	7	.50	45	19	.64	85	51	.60
Southeast.....	54	34	.67	0	0	.00	0	0	.00	1	1	1.00	34	18	.53	89	53	.60
Southwest.....	20	13	.65	1	0	.00	2	1	.50	3	2	.67	16	9	.56	42	25	.60
West.....	5	3	.60	2	1	.50	4	3	.75	8	6	.75	17	11	.65	36	24	.67

Table 9.6.2.—Number of high schools in sample (M), number returning principal's questionnaire (m) and response rate (m/M) in sampled PSU's by region, urbanization, and percent nonwhite in high school

	Percent nonwhite in high school																	
	75.1-100.0			50.1-75.0			25.1-50.0			10.1-25.0			0-10.0			Total		
	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M
United States.....	469	332	0.71	25	18	0.72	71	50	0.70	89	64	0.71	516	354	0.69	1,170	818	0.70
Nonmetropolitan.....	373	254	.68	6	4	.83	37	24	.65	51	36	.69	354	227	.64	821	545	.67
North and West.....	24	18	.75	5	3	.60	29	18	.62	30	21	.70	96	63	.66	184	123	.67
South.....	293	194	.66	0	0	.00	1	1	1.00	6	6	1.00	212	140	.66	512	341	.67
Southwest.....	56	42	.75	1	1	1.00	7	5	.71	15	9	.60	46	24	.52	125	81	.65
Metropolitan.....	96	78	.81	19	14	.74	34	26	.76	38	28	.74	162	127	.72	349	273	.78
Northeast.....	8	8	1.00	8	6	.75	19	16	.84	12	9	.75	50	44	.88	97	83	.86
Midwest.....	9	7	.78	8	6	.75	9	6	.67	14	9	.64	45	34	.76	85	62	.73
Southeast.....	54	45	.83	0	0	.00	0	0	.00	1	1	1.00	34	23	.68	89	69	.78
Southwest.....	20	15	.75	1	1	1.00	2	1	.50	3	2	.67	16	11	.69	42	30	.71
West.....	5	3	.60	2	1	.50	4	3	.75	8	7	.88	17	15	.88	36	29	.80

Table 9.6.3.—Number of high schools in sample (M), number returning 12th grade student test and questionnaires (m), and response rate (m/M) in sampled PSU's by region, urbanization, and percent nonwhite in high school

	Percent nonwhite in high school																	
	75.1-100.0			50.1-75.0			25.1-50.0			10.0-25.0			0.0-10.0			Total		
	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M
United States.....	469	305	0.65	25	17	0.68	71	52	0.73	89	69	0.77	516	337	0.65	1,170	780	0.67
Nonmetropolitan.....	373	239	.64	6	4	.67	37	28	.76	51	43	.84	354	223	.63	821	537	.65
North and South.....	24	21	.88	5	3	.60	29	22	.76	30	27	.90	96	78	.81	184	150	.82
South.....	293	177	.60	0	0	.00	1	1	1.00	6	6	1.00	212	118	.56	512	302	.59
Southwest.....	56	41	.73	1	1	1.00	7	5	.71	15	10	.67	46	27	.59	125	85	.68
Metropolitan.....	96	66	.69	19	13	.68	34	24	.71	38	26	.68	162	114	.70	349	243	.70
Northeast.....	8	7	.88	8	6	.75	19	15	.79	12	8	.67	50	44	.88	97	80	.82
Midwest.....	9	6	.67	8	6	.75	9	4	.44	14	6	.43	45	30	.67	85	52	.61
Southeast.....	54	35	.65	0	0	.00	0	0	.00	1	1	1.00	34	18	.53	89	54	.61
Southwest.....	20	15	.75	1	0	-----	2	2	1.00	3	3	1.00	16	11	.69	42	31	.74
West.....	5	3	.60	2	1	.50	4	3	.75	8	8	1.00	17	11	.65	36	26	.72

Table 9.6.4.—Number of feeder schools with sixth grade (M), number returning student questionnaires and tests (m), and response (m/M) in sampled PSU's by region, urbanization, and percent nonwhite in high school

	Percent nonwhite in high school																	
	75.1-100.0			50.1-75.0			25.1-50.0			10.1-25.0			0.0-10.0			Total		
	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M	M	m	m/M
United States.....	959	700	0.73	116	89	0.77	314	211	0.67	391	313	0.80	1,443	1,064	0.74	3,223	2,377	0.74
Nonmetropolitan.....	667	498	.75	18	5	.28	103	70	.68	184	143	.78	813	593	.73	1,785	1,309	.73
North and West.....	46	45	.98	17	4	.24	75	48	.64	129	99	.76	293	225	.77	560	421	.75
South.....	544	390	.72	0	0	.00	2	2	1.00	33	30	.91	424	298	.70	1,003	720	.72
Southwest.....	77	63	.82	1	1	1.00	26	20	.77	22	14	.64	96	70	.73	222	168	.76
Metropolitan.....	292	202	.69	98	84	.86	211	141	.67	207	170	.82	630	471	.75	1,438	1,068	.74
Northeast.....	29	22	.76	29	26	.90	121	89	.74	59	48	.81	192	174	.91	430	359	.83
Midwest.....	42	22	.52	59	50	.85	62	38	.61	64	52	.81	208	138	.66	435	300	.69
Southeast.....	170	118	.69	0	0	.00	0	0	.00	13	11	.85	105	65	.62	288	194	.67
Southwest.....	40	30	.75	1	0	.00	7	6	.86	7	7	1.00	35	19	.54	90	62	.69
West.....	11	10	.91	9	8	.89	21	8	.38	64	52	.81	90	75	.83	195	153	.78

Table 9.6.5.—Availability (expressed as a percent) of specified high school characteristics to white students (X_W) and to nonwhite students (X_{NW}) derived from (1) sample of 689 schools which had both principal and student instruments and, (2) sample of 818 schools which responded to principal questionnaire, and 66 schools representing the 352 nonrespondents

Item	Characteristic	Source	Total United States	
			X_W	X_{NW}
			(Percent)	(Percent)
P-6.....	School accreditation.....	(1)	75.6	71.0
		(2)	75.3	64.1
P-13a.....	Centralized school library.....	(1)	95.9	96.1
		(2)	97.8	96.2
P-13c.....	Auditorium.....	(1)	45.8	52.4
		(2)	44.7	53.2
P-13e.....	Gymnasium.....	(1)	73.7	68.8
		(2)	72.5	57.1
P-13j.....	Shop with power tools.....	(1)	95.9	90.7
		(2)	97.8	92.0
P-13k.....	Biology laboratory.....	(1)	93.7	92.8
		(2)	95.3	92.2
P-13l.....	Chemistry laboratory.....	(1)	98.1	96.6
		(2)	92.8	81.0
P-16.....	Provide free textbooks.....	(1)	61.8	71.2
		(2)	68.0	69.9
P-29.....	Use national teacher examinations.....	(1)	7.3	17.8
		(2)	9.0	35.6
P-60.....	Principal has master's degree.....	(1)	78.9	78.8
		(2)	83.6	68.2
P-78a.....	College preparatory curricula.....	(1)	96.0	90.6
		(2)	93.9	89.4
P-78b.....	Commercial curricula.....	(1)	92.2	79.3
		(2)	94.2	77.4
P-78c.....	General curricula.....	(1)	92.3	91.7
		(2)	94.8	93.0
P-78d.....	Vocational curricula.....	(1)	54.5	56.2
		(2)	56.7	65.4
P-78e.....	Agriculture curricula.....	(1)	28.4	22.2
		(2)	32.6	38.6

9.7 Reliability of questionnaire responses

This section presents the results of a brief study that was done to obtain some indication of measurement errors in the survey arising from erroneous reporting by the pupils to some of the questions about themselves, their schooling, and their homes and families. No scientific inferences can be made from this study as neither the school districts nor the students were selected as a probability sample. However, it is believed that the factors creating the measurement errors identified in this study are fairly widespread and are probably consistent in most areas of the United States.

Revised questionnaires were prepared for grades 3, 6, 9, and 12, using only those items from the

questionnaires of the school survey tests that could be verified from school records or that were of a factual nature known to parents.

The questionnaires were administered by the classroom teachers to a total of 700 students in 2 school districts in Tennessee: 1 a medium-sized city district and the other a rural county district. The superintendents of the school districts were asked to select classes which would be representative of their respective districts. The number of participating pupils, categorized by various characteristics, are shown in table 9.7.1. The relatively small number of nonwhite children shown in the table is explained by the fact that in both districts nonwhite children were integrated into the classrooms so that there were no predominantly nonwhite schools or classrooms.

The followup was made by teachers who com-

pleted a second questionnaire for each child. Teachers reviewed school records to determine the answers that were available from these sources. To complete the form, teachers interviewed parents. Pupil and followup questionnaire forms were stapled together and name identification was removed so that parents and pupils could be assured of anonymity of their responses.

The standard response agreement used was to count as agreement all pairs (pupil/followup) of responses that were identical. The response of "I don't know" and the small number of pairs with blank responses were also counted as agreements. The results of these comparisons are shown in table 9.7.2 by the item number of the original questionnaire used in the Education Opportunities Survey and by grade level. This table also includes a summary by category of pupil.

A considerable number of disagreements occurred on items that required recall of information from 1 or more years in the past, or that required making a judgment about generally known information and selecting a specific one of the given responses. It is interesting to note that on

the item referring to ability grouping in the 9th and 12th grade, the students considered themselves grouped while the schools denied the practice. Another high disagreement item in the 12th grade related to the type of community in which the student lived. The disagreements resulted from many of the urban pupils misclassifying their city as to population. An examination of the percentages of agreement of questions indicates that there is no consistent pattern of increase or decrease in response accuracy with respect to grades.

It should not be concluded that all the disagreements originated in the responses of the 700 pupils. Parents were asked to give estimates, such as books and magazines in the home. Some parents may have been less than frank when asked by a teacher interviewer about attendance at PTA meetings.

It may be concluded, bearing in mind the limitations of this study that were described above, that pupils responded to the questionnaire used for this survey with reasonable accuracy to factual items about themselves, their schooling, and their homes and families.

Table 9.7.1.—Numbers of participating pupils; by category

Pupil category	Grade				All grades
	3	6	9	12	
Male, urban, white.....	27	18	26	23	94
Female, urban, white.....	17	19	19	18	73
Male, urban, nonwhite.....	16	20	17	22	75
Female, urban, nonwhite.....	28	28	13	28	97
Male, rural, white.....	38	39	47	54	178
Female, rural, white.....	38	41	50	46	175
Male, rural, nonwhite.....	1	0	1	0	2
Female, rural, nonwhite.....	0	6	0	0	6
Total male.....	82	77	91	99	349
Total female.....	83	94	82	92	351
Total urban.....	88	85	75	91	339
Total rural.....	77	86	98	100	361
Total white.....	120	117	142	141	520
Total nonwhite.....	45	54	31	50	180
Total number of pupils.....	165	171	173	191	700

Table 9.7.2.—Percentage of response agreement; by grade and questionnaire item

Characteristic	Grade 3		Grade 6		Grade 9		Grade 12	
	Item number	Percent	Item number	Percent	Item number	Percent	Item number	Percent
Sex.....	1	99.4	1	99.5	3	99.4	3	99.5
Age.....	2	98.2	2	87.8	4	98.3	4	96.3
Race.....	3	97.6	4	99.5	7	94.8	7	99.5
Puerto Rican.....	4	98.2	5	99.5				
Mexican American.....	5	98.2	6	100.0	8	98.8	8	100.0
Number of people in home.....	6	90.8	7	89.6	9	98.3	9	95.3
Number of children in family.....	7	91.5	8	87.2	10	91.9	10	96.3
Does mother work.....	10	98.9	15	91.8	23	97.8	23	96.9
Read to before going to school.....	11	91.5	18	60.3	30	81.5	30	77.5
Foreign language in home.....	12	97.0	16	97.1	13	97.8	13	99.5
Do you speak foreign language outside school.....	13	96.4	17	98.3	14	97.1	14	85.9
Number of rooms in house.....	14	82.4			15	95.9	15	92.7
Does family have:								
Television set.....	15	98.9	19	97.7	31	100.0	31	98.9
Telephone.....	16	100.0	20	92.4	32	98.8	32	100.0
Record player, etc.....	17	95.7	21	92.4	23	98.8	33	98.9
Refrigerator.....	18	98.2	22	99.5	34	99.4	34	100.0
Automobile.....	21	96.4	25	94.8	37	96.5	37	100.0
Vacuum cleaner.....	22	97.6	26	97.1	38	95.9	38	97.4
Daily newspaper.....	23	97.0	27	88.3	39	100.0	39	97.9
Dictionary.....			23	94.8	35	97.8	35	100.0
Encyclopedia.....			24	95.9	36	95.4	36	97.9
Different schools gone to.....	26	92.1	30	85.4				
Nonwhite teacher last year.....	32	96.4	43	98.3				
Go to kindergarten.....	34	94.5	45	91.8	44	95.4	45	98.9
Go to nursery school.....	35	97.6	46	97.7	45	98.3	46	97.9
Grade in last year.....	36	98.2	47	99.5				
Where born.....			3	87.8	1	100.0	1	98.9
Father's education.....			11	79.0	19	86.7	19	84.3
Father's work.....			12	84.2			18	89.5
Where mother born.....			13	89.6	2	97.1	2	97.4
Mother's education.....			14	77.8	20	89.6	20	85.9
White students in class last year.....			31	82.5				
Time on homework.....			32	64.4				
Area spent most of life.....					5	96.5	5	97.9
Type of community.....					6	84.4	6	66.5
How many older brothers and sisters.....					11	95.4	11	95.8
Droupouts.....					12	95.9	12	94.2
Grade average.....					85	93.6	88	84.3
Type of school attended in 8th grade.....					107	99.4	116	99.5
Type of community mother lived in at pupil's age.....					21	90.7	21	78.5
Parent attendance at PTA meetings.....					19	84.4	19	86.4
Number of magazines gotten regularly.....					41	81.0	41	86.4
Number of books in home.....					42	82.1	42	84.8
Curriculum enrolled in.....					46	84.4	47	77.0
Last time changed school.....					47	88.4	48	75.9
Days absent.....					59	80.3	62	77.5
Ability group or track.....					83	69.4	86	63.9
Repeating English course.....					84	99.4	87	96.9
Summary:								
Total.....		95.9		90.7		93.4		91.3
White.....		95.7		90.8		95.4		92.5
Nonwhite.....		96.6		90.3		84.3		88.2
Urban.....		94.8		89.9		81.4		90.0
Rural.....		97.2		91.9		95.0		92.6
Male.....		95.7		91.4		93.5		91.4
Female.....		96.2		90.1		93.5		91.3

9.8 Technical details for the regression analysis

In addition to the data-processing procedures discussed in earlier appendixes, the regression analysis necessitated further preparation of the data. The steps required for the regression analysis are listed below.

1. The variables used in the regression analysis originated in four source documents, which were first filed on four separate tape files at each grade level.

- (a) Student variables, including test scores and all information from student questionnaires. The file consisted of one record per student.
- (b) Teacher variables, which were responses to all items in the teachers' questionnaire, and the score on verbal skills test. The file consisted of one record per teacher.
- (c) Principal variables, which were responses to all items on principals' questionnaire. Item responses were transformed where possible from categorical responses to a numerical response, and certain special measures were created (see app. 9.42) through use of responses to more than one item (such as library volumes per student). The file consisted of one record per school.
- (d) Superintendent variables, which were responses to all items on superintendents' questionnaire. The file consisted of one record per school system.

2. The first steps toward creation of records for the regression analysis were:

- (a) For each grade, aggregation of student variables over the school (for the grade in question) to obtain aggregate student variables that were termed student environment variables. This resulted in a file with one record per school.
- (b) Transferring from the superintendents' record to the record of each principal in his district those items to be used in the regression analysis. In the report only one such item appears: per-pupil instructional expenditure.
- (c) Aggregation of teachers' variables to create averages for all teachers in the school who taught at particular grades. For 12th grade: teachers in grades 9, 10, 11, 12. For 9th grade: teachers in

grades 7, 8, 9, 10, 11, 12. For grades 6, 3, 1: teachers in grades 1, 2, 3, 4, 5, 6. The file thus created consisted of one record per school.

3. The second steps consisted of sampling at each grade of 1,000 student records in each of 20 strata (8 regional strata for Negroes and whites, and 1 stratum for each of the other minorities), and creating at each grade 20 new files of 1,000 records each, with a record representing each student. Each record in this new file included the student record, the teacher-aggregate record for his school, the principal-superintendent record for his school, and the student environment record for his school. The sampling was carried out by interval sampling, and each student's probability of being sampled was, within his stratum, proportional to the number of students he represented in the population; that is, the sample was drawn from the weighted student files. Each student's weight was calculated as indicated in equation (1) in section 9.4, with a slight modification. All schools achieved in all counties or SMSA's a given stratum (defined in sec. 9.4) represent all schools in that stratum, rather than only the schools in the same county. The effect of this was to reduce the variation in weights. The equation used was

$$W_{ik} = \frac{N_i}{\sum_j N_{ij}} \cdot \frac{\sum_j r_{ijk}}{\sum_j \sum_k r_{ijk}}$$

using the notation of section 9.4. The regional strata for which weights were calculated were the collapsed set of 8, not the original set of 14. If any weights within a stratum ranged beyond a ratio of 15:1, smoothing was carried out by pooling over substrata to reduce the range to 15:1, except in the case of region 7, where this would have overweighted metropolitan areas in Hawaii, relative to the remaining West.

4. The third step consisted of creating a new record consisting of 103 variables to be used in the regression analysis, constructed from variables in records created in (3) above. The construction of these variables is described under (6) below. This gave a final working tape for each grade, consisting of 20 files, each with 1,000 records representing individual students. This tape became the input tape for correlation runs.

5. Correlation matrices were created for each of the 20 files. Missing data was treated as

follows: correlations were calculated by use of each case for which both variables in the correlation were present. Thus, a case with a missing observation was deleted only for those correlations in which this variable was involved. Covariances were adjusted to the total sample size. Correlation matrices were constructed for combined regions (e.g., Negro North, Negro South, white North, white South), by adding covariances matrices after weighting by the total size of the population represented by each regional stratum. A number of correlation matrices were calculated using subsets of the 103 variables (in subsets of 60, which was the size limit of the correlation matrix) in exploratory analysis. In the final analysis, 60 variables that appeared from the exploratory analysis to be most important were selected and used for all grades (though at lower grades, some variables were non-existent, reducing the total at those grades). These correlation matrices for all groups used in the analysis will be included in a separate appendix to this report.

6. The variables used in the regression analysis consist, in some cases, of indexes constructed of

several items. In construction of these indexes, each item was standardized to a mean of zero and equal standard deviation. Nonresponse on an item was counted as zero, equivalent to giving nonresponses a population mean in constructing the index. Equal standard deviations meant that each item was weighted equally.

One hundred three variables were constructed at each grade level (though with some variables missing at lower levels). In the computer print-outs appended, these are labeled as—

dependent (10 test scores)
 student (15 student questionnaire variables)
 teacher (20 teacher-aggregate variables)
 principal plus superintendent (31 principal and superintendent questionnaire variables)
 school environment (21 student-aggregate variables)

The construction of variables from questionnaire items is given below. The item numbers from the questionnaire at each grade level are listed below or beside the variable name. In one case an item was given double weight in a variable. Where this is the case, the item number appears twice.

Variable number	Dependent	Student	Variable name	Grade (0=missing)				
				12	9	6	3	1
1	1	-----	Nonverbal score.....	X	X	X	X	X
2	2	-----	General information test 1.....	X	X	O	O	O
3	3	-----	General information test 2.....	X	X	O	O	O
4	4	-----	General information test 3.....	X	X	O	O	O
5	5	-----	General information test 4.....	X	X	O	O	O
6	6	-----	General information test 5.....	X	X	O	O	O
7	7	-----	General information total.....	X	X	O	O	O
8	8	-----	Verbal score.....	X	X	X	X	X
9	9	-----	Reading comparability.....	X	X	X	X	O
10	10	-----	Mathematical achievement.....	X	X	X	X	O
11	-----	1	Reading material in home..... (12, 9:q.35, 36, 39, 41, 42)(6:q.23, 24, 27) (3:q.19, 20, 23)(1:q.22, 23, 26)	X	X	X	X	X
12	-----	2	Items in home..... (12, 9:q.31, 32, 33, 34, 37, 38) (6:q.19, 20, 21, 22, 25, 26) (3:q.15, 16, 17, 18, 21, 22) (1:q.18, 19, 20, 21, 24, 25)	X	X	X	X	X
13	-----	3	Parents' education..... (12, 9:q.19, 20)(6:1:q.11, 14)	X	X	X	O	X
14	-----	4	Siblings (positive=few)..... (12, 9:q.10)(6, 1:q.8)(3:q.7)	X	X	X	X	X
15	-----	5	Parents' Educational Desires..... (12, 9:q.27, 28, 29, 24, 25)(6:q.41, 42)(3:30, 31)	X	X	X	X	O
16	-----	6	Parents' interest..... (12, 9:q.26, 30)(6:q.18, 54)(3:q.11)	X	X	X	X	O

Variable number	Dependent	Student	Variable name	Grade (0=missing)				
				12	9	6	3	1
17	-----	7	Structural integrity of home..... (12, 9:q.16, 17)(6, 1:q.9, 10)(3:q.8, 9)	X	X	X	X	X
18	-----	8	Changing schools..... (12:q.47, 48)(9:q.46, 47)(6:q.30)(3:q.26)	X	X	X	X	O
19	-----	9	Foreign language in home..... (12, 9:q.13, 14)(6, 1:q.16, 17)(3:q.12, 13)	X	X	X	X	X
20	-----	10	Urbanism of Background (12, 9) or migration (6, 1).. (12, 9:q.6, 6, 21)(6, 1:q.3, 13)	X	X	X	O	X
21	-----	11	Control of environment..... (12:q.102, 103, 110)(9:q.93, 94, 103)(6:q.38)	X	X	X	O	O
22	-----	12	Self concept..... (12:q.91, 108, 109)(9:q.88, 99, 100)(6:q.37, 40) (3:q.29)	X	X	X	X	O
23	-----	13	Interest in school and reading..... (12:q.57, 59, 60, 63)(9:q.54, 56, 57, 60) (6:q.23, 36, 51)(3:q.24)	X	X	X	X	O
24	-----	14	Homework (12, 9, 6), Headstart (1)..... (12:q.61)(9:q.58)(6:q.32)(1:q.29)	X	X	X	O	X
25	-----	15	Preschool..... (12, 6:q.45, 46)(9:q.44, 45)(3:q.34, 35) (1:q.27, 28)	X	X	X	X	X

Variable number	School environment	Variable name	Grade (0=missing)				
			12	9	6	3	1
26	1	Number of X grade students.....	X	X	X	X	X
27	2	Nonverbal mean score.....	X	X	X	O	O
28	3	Verbal mean score.....	X	X	X	O	O
29	4	Proportion Negro in grade.....	X	X	X	X	O
30	5	Proportion white in grade.....	X	X	X	X	O
31	6	Proportion Mexican-American in grade.....	X	X	X	X	O
32	7	Proportion Puerto Rican in grade.....	X	X	X	X	O
33	8	Proportion Indian in grade.....	X	X	X	X	O
34	9	Proportion Oriental in grade.....	X	X	X	X	O
35	10	Proportion Other in grade.....	X	X	X	X	O
36	11	Average white in class last year.....	X	X	X	O	O
37	12	Average white through school.....	X	X	O	O	O
38	13	Proportion Definite plans for college.....	X	X	O	O	O
39	14	Proportion Mother attends college.....	X	X	X	O	X
40	15	Proportion Mother wishes excellence.....	X	X	X	X	O
41	16	Proportion Own encyclopedia.....	X	X	X	X	X
42	17	Proportion College prep curriculum.....	X	X	O	O	O
43	18	Proportion Read over 16 books.....	X	X	O	O	O
44	19	Proportion Member debate club.....	X	X	O	O	O
45	20	Average number science courses.....	X	X	O	O	O
46	21	Average number language courses.....	X	X	O	O	O
47	22	Average number mathematics courses.....	X	X	O	O	O
48	23	Average time with counselor.....	X	X	O	O	O
49	24	Proportion Teachers expect to be best.....	X	X	O	O	O
50	25	Proportion No chance for successful life.....	X	X	X	O	O
51	26	Proportion Want to be best in class.....	X	X	O	O	O
52	27	Average hours homework.....	X	X	X	O	O

Variable number	Teacher (average)	Variable name
53	1	Perception of student quality (q. 33, 34, 47).
54	2	Perception of school quality (q. 38, 44, 47).
55	3	Teachers SES level (q. 10).
56	4	Experience (q. 25).
57	5	Localism (q. 3, 7, 15, 25/26).
58	6	Quality of college attended (q. 23).
59	7	Degree received (q. 11).
60	8	Professionalism (q. 48, 50).
61	9	Attitude toward integration (q. 46a, 46b, 46d, 46f).
62	10	Preference for middle class students (q. 39, 40, 43).
63	11	Preference for white students (q. 42).
64	12	Verbal score.
65	13	Variation in proportion of white students taught (q. 45, std. dev.).
66	14	Sex: Proportion male (q. 1).
67	15	Race: Proportion white (q. 5).
68	16	Type of certification (proportion without, q. 28).
69	17	Average salary (q. 32).
70	18	Number of absences (q. 27).
71	19	Attended institute for disadvantaged (q. 31).
72	20	Attended NSF institute (q. 30).

Variable number	Principal plus superintendent	Variable name
73	1	Pupils per teacher (special measure).
74	2	Proportion makeshift rooms (special measure).
75	3	Number of specialized rooms (special measure).
76	4	Science lab facilities (special measure) (usable only at 12, 9).
77	5	Volumes per student (special measure)
78	6	Extracurricular activities (special measure) (usable only at 12, 9).
79	7	Separate classes for special students (special measure).
80	8	Comprehensiveness of curriculum (special measure) (usable only at 12, 9).
81	9	Correctional and service personnel (special measure).
82	10	Student transfers (special measure).
83	11	Number of types of testing (special measure).
84	12	Movement between tracks (special measure) (usable only at 12, 9).
85	13	Accreditation index (q. 5, 6).
86	14	Days in session (q. 8).
87	15	Age of texts (q. 61).
88	16	Part-day attendance (q. 21).
89	17	Teacher turnover (q. 27).
90	18	Guidance counselors (q. 35) (usable only at 12, 9).
91	19	Attendance (q. 42).
92	20	College attendance (q. 49) (usable only at 12, 9).
93	21	Teachers college for principal (q. 55).
94	22	Salary (q. 71).
95	23	School location (q. 72) (urban high, rural low).
96	24	Length of academic day (q. 76).
97	25	Tracking (q. 81) (usable only at 12, 9).
98	26	Accelerated curriculum (q. 86) (high=absence of accelerated course).
99	27	Promotion of slow learners (q. 89).
100	28	Attitude toward integration (q. 95, 96).
101	29	Per pupil instructional expenditure (supt. quest.).
102	30	School board elected (supt. quest.).
103	31	Teachers' examinations (q. 28).

7. A special regression was run using combinations of above variables to arrive at a few variables representing different types of influences on

achievement, these combinations are given below. An R after variable number means its directionality is reversed.

	Variables used in grade				
	12	9	6	3	1
1. Verbal score.....					
2. Family economic level.....	12, 14, 17, 20	12, 14, 17, 20	12, 14, 17, 20	12, 14, 17, 20	12, 14, 17, 20
3. Family education level.....	11, 13, 15, 16	11, 13, 15, 16	11, 13, 15, 16	11, 15, 16	11, 13, 15, 16
4. Student attitudes.....	21, 22, 23, 24	12, 22, 23, 24	21, 22, 23, 24	22, 23	0
5. School facilities.....	73, 75, 77, 87R 87R, 101, 76, 48	73, 75, 77, 87R 88R, 101, 76, 48	73, 75, 77, 87R 87R, 101	73, 75, 77, 87R, 88R, 101	73, 75, 77, 87R, 88R, 101
6. School curriculum.....	78, 79, 80, 98R	78, 79, 80, 98R	78, 79, 98R	78, 79, 98R	78, 79, 98R
7. Teacher quality.....	58, 59, 64, 68, 71, 72	58, 59, 64, 68, 71, 72	58, 59, 64, 68, 71, 72	58, 59, 64, 68, 71, 72	58, 59, 64, 68, 71, 72
8. Teacher attitudes.....	61, 62R, 63	61, 62R, 63	61, 62R, 63	61, 62R, 65	61, 62R, 63
9. Student body educational level.....	27, 28, 41, 42, 46, 39	27, 28, 41, 42, 46, 39	27, 28, 41, 42, 39	41	41, 39

8. Correlation matrices for the major regressions used in the analysis of section 3.2 are appended (bound separately). These correlation matrices contain from 45 (at grade 1) to 60 (at grade 12) of the 103 variables described above.

9.9 Survey instruments

As can be seen from table 9.9.1, the test battery in grade 1 consisted of the picture vocabulary test, which was used as a measure of verbal ability, and the association and classification tests as the nonverbal ability measures. In grade 3 the picture vocabulary test was again used as the verbal ability measure and classification and analogies were the nonverbal measures. Similar nonverbal measures were used also in grades 6, 9, 12, and 13. Grade 3 students were also given the reading and mathematics tests. Similar tests were used also in the higher grades of 6, 9, 12, and 13. Grade 6 used a similar battery as grade 3, with the

exception that the sentence completion and synonym tests were used in place of the picture vocabulary test. These types of tests were continually used in grades 9, 12, and 13. In grade 9, however, the general information test was added and used also in grades 12, and 13. Grade 13, college freshmen, received the identical battery as the 12th grade. Grade 16, college seniors used a form of the National Teachers Examinations. The parts selected were similar to those used in the above batteries.

Thus, the interlock of test scores are between grades 3, 6, 9, 12, and 13, all of which use the same type of reading and mathematics tests developed from the ETS Sequential Tests of Educational Progress series. The nonverbal tests derived from the Inter-American Tests of General Ability were used in grades 1, 3, 6, 9, 12, and 13. The ETS School and College Ability Test series were the source of the verbal measures used in grades 6, 9, 12, and 13.