

The logo for the Graduate Record Examinations (GRE), featuring the letters 'GRE' in a stylized, white, serif font against a dark, textured background.

GRADUATE RECORD EXAMINATIONS

**AN EXAMINATION OF THE
GRADUATE STUDY APPLICATION
AND ENROLLMENT DECISIONS
OF GRE CANDIDATES**

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An Examination of the Graduate Study Application
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Abstract

This study was designed to analyze the relationship of GRE scores to applicants' choices of institutions, their admission, and their enrollment. Applicants from four fields were followed up the year after they had taken the GRE tests. Information was obtained about the departments to which the test takers applied and the departments that offered them admission. In addition, other information about the test takers' current status was collected. The typical respondent had applied to one or two departments, was accepted by at least one department, and said that he or she was satisfied with the department in which he or she was enrolled. This picture changed slightly when applicants were grouped by undergraduate grades, GRE scores, sex, race, and intended fields of study. There was evidence of self-selection by test takers to apply to more prestigious departments, based on their undergraduate grades and GRE scores. Respondents felt that the GRE tests were fair and that they were not obstacles to entrance to graduate education.

An Examination of the Graduate Study Application and Enrollment Decisions of GRE Candidates

What happens to those who take the Graduate Record Examinations? How many apply to graduate school, and, of those that apply, how many are admitted? How do the answers to these questions vary by the students' GRE scores? How do they vary by sex, race, and family income? What role do candidates' GRE scores play in their choices? These questions seem basic to our understanding of the role of the GRE tests in the admission process. Yet, we had no solid information to address any of the questions.

The purpose of the study described here was to obtain data to answer these questions. Although other research has indicated that most applicants to graduate school are admitted (Baird, Hartnett, & Clark, 1973; Miller, 1963; Presley, 1981) and that most applicants to graduate school are accepted (Berelson, 1960; Presley, 1981; Solmon, 1976), it is important to obtain the same kind of information about GRE test takers since they may be more able and ambitious students and may apply to more selective programs. (The earlier research is reviewed in the discussion.) The basic strategy was to follow up GRE test takers, ask them where they applied, where they were admitted, and where they enrolled and to relate their responses to their GRE scores and other personal characteristics. Because the pattern of influences on the admission process may vary from academic area to academic area, the study was conducted in four diverse fields.

The strategy used here obviously could only show the overall patterns of entry into graduate education; the selection process within departments would need to be investigated separately. However, information about the overall pattern of admissions would seem essential to interpret studies within departments. By studying four diverse fields, differences in patterns were examined. Also, by studying the admission process within fields, we were able to relate student characteristics to departmental characteristics, specifically, the ratings of the "quality" of the departments.

Method

Sample

The sample was drawn from GRE Aptitude Test takers intending to pursue graduate study in the fields of psychology, English, education, and microbiology. These fields are taken from the social sciences, the humanities, the professional fields, and the biological sciences. Fairly large numbers of applicants in these areas take the GRE Aptitude Test, so analyses of subgroups are possible. In addition, a considerable number of applicants in these areas take the relevant GRE Advanced Test. The sample

was drawn only from those test takers who, at the time they took the Aptitude Test, were either undergraduate seniors or college graduates not already enrolled in graduate school. This eliminated candidates who were not involved in the college to graduate school transition. The samples were drawn from successive test administration groups from October 1979 through June 1980.

The sample was drawn in two ways. First we took every applicant planning graduate study in English and microbiology who took the test on each date. To keep the size of the sample to manageable proportions, a one-quarter sample of GRE test takers planning to study in psychology and education was drawn. Because the address on the test registration form is usually a temporary one--a college dorm or apartment near campus--and because many students move after college, it was necessary to determine a reasonably permanent address so that a follow-up survey would reach the students. Therefore, we sent surveys to most test takers at their current mailing address in the spring of the academic year and asked them to provide us with an address where they could be reached in the fall or that would forward their mail. Applicants of subsequent administrations were sent surveys shortly after taking the test. (The survey is reproduced in Appendix B.) In addition, the candidates were asked to indicate the number of departments to which they had applied, the number that had offered them admission, and whether one of these departments was their first choice. Overall, 13,339 test takers were sent the original address update just described. A total of 6,186 address update forms were returned. In addition, approximately 675 surveys were returned because the U.S. mail could not deliver them. Thus, the returns represent 48 percent of the original sample that received the surveys. Although this response rate was low, it may be better than this figure would suggest. Applicants who take the GRE are at one of the most mobile and busy periods of their lives. In addition, the addresses provided in registration may not be as useful for follow-ups as was originally thought.

As shown in Appendix A, when their responses to the GRE background information questions were compared, there was virtually no difference between the respondents and nonrespondents in terms of the type of college they had attended, year of receipt of the bachelor's degree, degree goals, previous graduate school attendance, hours per week spent working for wages, hours spent in community service, and social class of their parents. The respondents included a smaller proportion of Blacks than would have been expected (but not Hispanics). The GRE scores of respondents were higher than those of nonrespondents, but their undergraduate grades in their majors and in the last two years of college were the same. There were ample numbers of respondents in every score category, so the relationships of concern to the project could be examined.

There may be bias in the sample because those who had positive experiences in their graduate applications would be more likely to respond. (A contrary theory is that those who had negative experiences would like to use the survey to indicate their displeasure with the

admission process and would be more likely to respond.) In any case, the GRE scores of respondents were higher, although, as analyses to follow will suggest, it may be that the basic picture of the admission process provided by the results of the project would not be greatly altered even if a near-perfect response were attained.

In fall 1980 a follow-up questionnaire was mailed only to those who completed the address update. This procedure was used to keep the costs of the project within reason. (This second questionnaire is reproduced in Appendix C and will be described later in this report.)

Analyses of First Survey

The analyses reported first are based on responses to the first follow-up (the address update form), which asked candidates the number of departments they had applied to, the number that had accepted them if any, and, if so, whether one of these departments was their first choice.

Using this information, and applicants' responses to background questions when they registered for the GRE and their GRE scores, we were able to determine the extent to which application, admission, and enrollment decisions are affected by such variables as sex, race, field, social class, academic performance, and test scores.

The sample consists of 1,647 applicants planning to pursue graduate study in psychology; 1,899 in English; 1,974 in education; and 632 in microbiology. Data were calculated for the total group and separately for men and women; Blacks, Hispanics, and Whites; applicants from families of different social class; applicants planning to enter different fields; students with different grades; and applicants with different test scores. The test score categories are approximate quartiles based on GRE national norms. The N's sometimes vary, because of missing data in the files, in a few cases including GRE scores.

Results

Table 1 shows the standing of different groups on five admission variables:

1. The percentage of each group who had applied anywhere, a simple baseline figure of the application behavior of GRE test takers
2. The percentage who applied to more than one department, a possible measure of the extent to which candidates are interested mainly in one department or are considering more
3. The percentage of those who applied who were offered admission to at least one department, a possible indicator of the presumed admissibility of applicants.

4. The median number of departments offering admission to those who applied, a possible indicator of the "attractiveness" of the students to departments
5. The percentage of those accepted who indicated that one of the accepting departments was their first choice department, an indication of the applicants' satisfaction with the outcomes of the admissions process

As shown in Table 1, of the total sample, 81 percent had applied to at least one department when they responded to the address follow-up survey. It should be noted that some applicants had taken the GRE tests early in their senior year and had not formally applied at the time of the survey. The total sample results also show that few of those who applied (29 percent) had applied to more than one department at the time of the survey.

The next three statistics are consistent with earlier research. Of those who applied, nearly four out of five had already been accepted by at least one department. The median number of departments offering acceptance was .9 in contrast to the median number of departments applied to, 1.1. Among those who reported being accepted, nearly nine in ten (87 percent) said that one of the accepting departments was their first choice department. In sum, the modal GRE test taker in this sample had applied to one department, had been accepted by that department, and considered that department to be his or her first choice among departments.

How do these figures vary by the characteristics mentioned earlier? As shown in Table 1, there is little difference among applicants when they were grouped by sex, parental education, and parental income. When applicants were grouped by ethnic group, Blacks and Hispanics reported somewhat lower acceptance rates than Whites. (Some possible reasons for this will be discussed in the next section.) Applicants applying to departments of psychology and microbiology reported somewhat lower acceptance rates than applicants to schools of education and departments of English. As expected, applicants with higher grades were accepted more frequently than applicants with lower grades. (The applicants with higher grades also tended to apply to more departments, so perhaps their chances of having at least one acceptance were greater.) However, applicants with higher GRE verbal, quantitative and analytical scores reported only slightly more acceptances (again, after applying to more departments). There was a slight tendency for the students with the very highest grades and test scores to report that they were accepted by their first choice department less frequently. In short, from this initial analysis, it would appear that applicants' probabilities for admission are most influenced by their undergraduate grades.

To better understand these results, the analyses shown in Table 2 were conducted. They show the proportion of the applicants with different test scores and other characteristics who reported at least one offer of admission. (To conserve space, only the results for the GRE verbal

Table 1

Basic Admission Variables for Groups of Candidates

Candidates grouped by:	Admission Variables*					N
	1	2	3	4	5	
<u>A. Sex</u>						
Male	82	39	78	.9	81	1840
Female	81	25	80	.9	90	4283
<u>B. Ethnic Group</u>						
Black	87	22	70	.8	90	599
Hispanic	88	21	74	.8	91	298
White	80	31	81	.9	87	5037
<u>C. Average Parental Education</u>						
High school graduates or less	84	23	79	.9	90	2321
Some college	80	28	80	.8	87	1410
College graduates	79	32	77	.8	87	981
Some graduate school	79	35	80	.9	84	873
Advanced degrees	80	42	81	.9	80	485
<u>D. Parental Annual Income during High School</u>						
Less than \$6,500	88	21	78	.9	91	796
\$6,500 to \$15,000	83	26	79	.9	90	2257
\$15,000 to \$25,000	79	32	80	.9	85	1689
More than \$25,000	76	36	77	.9	83	1114
<u>E. Intended Graduate Field</u>						
Education	88	10	82	.9	96	1974
English	83	31	82	1.0	89	1899
Microbiology	74	41	74	.8	86	632
Psychology	74	45	73	.7	72	1647
<u>F. Undergraduate GPA in Major</u>						
C and below	87	15	66	.7	92	289
B-	83	20	74	.8	88	641
B	81	24	77	.8	90	1939
A-	81	33	81	.9	85	1910
A	80	40	86	1.0	85	1268

*Code

- (1) Percentage who had applied anywhere
- (2) Percentage who applied to more than one department
- (3) Percentage of those who applied who were offered admission by at least one department
- (4) Median number of departments offering admission to those who applied
- (5) Percentage of those accepted who said department was their first choice

Table 1
(continued)

Candidates grouped by:	Admission Variables*					N
	1	2	3	4	5	
<u>G. Undergraduate GPA, All Courses, Last Two Years</u>						
C and below	78	19	68	.7	89	228
B-	83	17	70	.7	89	542
B	80	25	76	.8	90	1933
A-	82	34	82	1.0	86	2152
A	80	36	86	1.1	85	1182
<u>H. GRE-Verbal Scores</u>						
420 and below	84	24	74	.8	84	1989
421-500	81	23	79	.8	91	1136
501-580	79	32	81	.9	89	1286
581 and above	80	36	84	1.0	87	1741
<u>I. GRE-Quantitative Scores</u>						
440 and below	85	24	78	.9	89	2585
441-530	80	27	79	.8	89	1588
531-620	79	35	80	.9	85	1185
621 and above	76	41	84	1.0	83	794
<u>J. GRE Analytical Scores</u>						
440 and below	84	24	77	.8	88	2181
441-540	82	24	78	.8	91	1364
541-620	81	33	81	.9	86	1376
621 and above	76	38	83	.9	84	1231
Total for All Candidates	81	29	79	.9	87	6186

*Code

- (1) Percentage who had applied anywhere
- (2) Percentage who applied to more than one department
- (3) Percentage of those who applied who were offered admission by at least one department
- (4) Median number of departments offering admission to those who applied
- (5) Percentage of those accepted who said department was their first choice

Table 2

Percentage of Candidates, Grouped by GRE Verbal Scores,
Who Were Offered Admission by One or More Departments

Candidates grouped by:	Verbal Score Category				N
	420 and below	421-500	501-580	Above 580	
<u>A. Sex</u>					
Men	73	75	81	83	1840
Women	75	79	82	85	4283
<u>B. Ethnic Group</u>					
Black	69	68	85	86	599
Hispanic	66	83	88	90	298
White	78	79	81	84	5037
<u>C. Parental Income</u>					
Less than \$6,500	72	86	85	83	796
\$6,500-\$15,000	73	77	82	87	2257
\$15,000-\$25,000	76	78	80	85	1689
More than \$25,000	76	79	84	81	1114
<u>D. Field</u>					
Education	77	86	89	88	1974
English	79	78	80	85	1899
Microbiology	61	70	80	82	632
Psychology	67	70	76	80	1647
<u>E. Undergraduate GPA in Major</u>					
C and below	61	78	71	70	289
B-	76	65	80	71	641
B	72	79	80	81	1939
A-	76	79	80	85	1910
A	84	82	86	88	1268

score groups are shown; the results for the quantitative scores were substantially the same). In most cases, the percentage of students reporting at least one offer of admission rises as the test score rises. There are also some group differences worth noting. For example, at each level, women were accepted slightly more frequently than men, possibly because, as shown in other analyses, women had somewhat higher grades. The reported acceptance rate does not seem to be related to parental income, but it is related to undergraduate grades and test scores. The high acceptance rate among students with low test scores but high grades is striking. In the two upper score categories, minority students reported acceptances slightly more frequently than Whites. However, in the lowest category, Blacks and Hispanics reported fewer acceptances. This may be due to the fact that minority students tend to take the GRE late in the year and may simply not have heard from the departments to which they applied when they responded to the initial survey.

The same variables were analyzed by GRE Advanced Test score quartiles. With the exception of applicants in education, students with higher test scores tended to apply to more departments. An examination of the results suggests that the percentage reporting acceptances appears to be more strongly related to Advanced Test scores than to verbal and quantitative ability scores. It is unclear whether this is because the departments requiring Advanced Test scores are more selective, or simply because departments with such requirements place more weight on Advanced Test scores.

Clearly these results may be due to self-selection of applicants to departments, a possibility that was examined when the second follow-up data were analyzed.

Follow-up Analyses

Data

The follow-up was mailed to the respondents in the first survey at the address they provided earlier. Only the respondents to the first survey were sent the second. Because of varied academic calendars, the follow-up was mailed in midfall. The second survey was returned by 3,512 former test takers. In addition, 625 surveys were returned because the U.S. mail could not deliver them. Thus, the sample represents 63 percent of those who presumably received the second survey. As shown in Appendix A, the respondents to the second survey were very similar to the respondents to the first survey in terms of ethnicity, type of college, years since obtaining the bachelor's degree, degree goals, previous graduate experience, undergraduate grades, work and community service experiences, and parental social class. They had somewhat higher GRE scores.

It is difficult to assess the extent to which those with more positive experiences would be more likely to respond to the surveys. However, if this were a very strong trend, then some of the results that follow, particularly the extent to which students reported that their GRE scores influenced their decisions, should be different. We shall return to this point later.

The information collected in the survey included the departments the candidates actually applied to (if any), the ones at which they were accepted, and the ones in which they actually enrolled. Their degree of satisfaction with their choices was obtained on a five-point scale. They were also asked about the role their GRE scores played in the choice of departments to which they applied and for their perception of the influence their GRE scores had on the departments' decisions. The candidates who were not admitted were asked about their current activities (employment status, etc.), their plans for future graduate education, and their opinions about the role their GRE scores had on their admissibility.

A separate list of institutions to which students applied was constructed with a code for the departments' prestige based on ratings made by Roose and Andersen (1970) for each field. In the case of education, the ratings made by Gourman (1980) were used. The code followed the usage of Schrader (1978): 5=distinguished; 4=strong; 3=good; 2=adequate plus; 1=not listed.

Analyses

The main analyses were designed to obtain some basic information about what actually happens to applicants with different GRE scores and different personal and academic characteristics.

Results for Admission Variables

The admission and enrollment variables we were most interested in are listed below:

1. The mean number of departments to which the respondents applied
2. The percentage who applied to more than one department
3. The percentage of those who applied who were offered admission to at least one department, a possible indicator of the presumed admissibility of applicants
4. The mean number of departments offering admission to those who applied, a possible indicator of the "attractiveness" of the applicants to departments
5. The percentage of the departments to which the respondents applied that were rated in the three top prestige ranking groups

6. The percentage of the departments at which the applicants were accepted that were rated in the three top prestige ranking groups
7. The percentage who were offered aid by at least one department, another possible indicator of the attractiveness of the applicants

Admission Variables: Total Sample Results. As shown at the bottom of Table 3, in column 1, the average candidate had applied to 2.5 departments. The total sample results also show that a minority of those who applied (42 percent) had applied to more than one department (column 2).

The next three statistics are consistent with the earlier results as well as with earlier research. Of those who applied, over three out of four were accepted by at least one department. The mean number of departments offering acceptance was 1.7 (column 4). (Again, the modal category was one department offering acceptance). Finally, we examined the percentage of applications and acceptances that were from departments rated at 2.5 and above by Roose and Anderson. (Seventy to 80 percent of all departments fall below these ratings). Thirty-eight percent of the departments to which applicants applied were rated this high. Expectedly, a lower percentage (34 percent) of the departments at which the respondents were accepted were rated at this level.

The final figure shows that about a third of the applicants had been offered some form of financial aid (column 7).

Thus, most applicants were offered acceptance somewhere, but the total number of offers, like the total number of applications, was low, and the typical application was made to a department of moderate prestige.

Admission Variables: Results by Test Score Categories. How does this picture vary by candidates' test scores? As shown in columns 1 and 2 of Table 3, applicants with higher scores tend to apply to more departments and, as shown in column 4, tend to receive slightly more offers of admission. However, as shown in column 3, the percentage of applicants reporting at least one offer of admission is very similar across score categories. Applicants with higher scores apply and are admitted to somewhat more prestigious departments (columns 5 and 6). Higher scoring students are more often offered some form of financial aid.

Admission Variables: Results by Personal and Academic Characteristics. How does this picture vary with applicants' personal characteristics? As shown in columns 1 and 2 of Table 4, males, Whites, and applicants from higher socioeconomic status homes applied to more departments. As shown in column 4, the mean number of acceptances was related to parental social class. The prestige of the departments to which respondents applied was slightly related to all the variables (column 5).

The prestige of the departments that accepted the applicants was related to some of their personal characteristics. Concentrating on

Table 3

Basic Admission and Outcome Variables for Candidates
Grouped by Test Scores

	Variables*							N
	1	2	3	4	5	6	7	
<u>GRE Verbal Scores</u>								
420 and below	2.2	33	73	1.7	31	28	30	1039
421-500	2.0	31	76	1.5	28	24	29	650
501-580	2.5	38	75	1.7	36	31	36	772
581 and above	2.8	44	80	1.8	48	45	44	1051
<u>GRE Quantitative Scores</u>								
440 and below	2.1	31	75	1.5	33	30	31	1381
441-530	2.2	33	78	1.6	35	35	33	1021
531-620	2.7	40	77	1.8	42	39	36	695
621 and above	3.3	55	76	2.1	50	46	49	515
<u>GRE Analytical Scores</u>								
440 and below	2.1	32	74	1.5	32	28	30	1148
441-540	2.0	40	78	1.6	36	31	30	767
541-620	2.5	39	79	1.7	36	29	38	826
621 and above	3.1	50	75	2.0	49	47	46	771
Total for all candidates	2.5	42	76	1.7	38	34	35	3512

*Code to Variables

- (1) Mean number of institutions applied to
- (2) Percentage of applicants who applied to more than one department
- (3) Percentage who were offered at least one acceptance
- (4) Mean number of offers of admission among those who applied
- (5) Percentage of departments applied to rated in three top groups
- (6) Percentage of accepting departments rated in three top groups
- (7) Percentage who were offered aid by at least one department

Table 4

Basic Admissions Data for Candidates Grouped
by Personal Characteristics

	Variables*							N
	1	2	3	4	5	6	7	
<u>Candidates grouped by:</u>								
<u>A. Sex</u>								
Male	3.2	48	75	1.9	41	37	41	1056
Female	2.1	32	77	1.6	38	34	33	2437
<u>B. Ethnic Group</u>								
Black	1.6	28	76	1.7	29	24	29	259
Hispanic	2.2	31	78	1.8	39	42	40	146
White	2.5	39	76	1.7	39	35	35	2984
<u>C. Average Parental Education</u>								
High school graduates or less	2.1	31	76	1.6	39	34	32	1347
Some college	2.3	35	77	1.6	33	30	37	835
College graduates	2.6	39	78	1.7	39	35	36	560
Some graduate school	2.8	45	76	1.8	44	39	36	496
Advanced degrees	3.4	52	73	2.1	45	42	40	274
<u>D. Parental Annual Income during High School</u>								
Less than \$6,500	1.6	23	78	1.3	34	30	32	437
\$6,500 to \$15,000	2.1	33	76	1.6	37	32	35	1324
\$15,000 to \$25,000	2.8	45	77	1.9	43	39	38	952
More than \$25,000	3.0	44	74	1.8	41	38	34	634

*Code to Variables

- (1) Mean number of institutions applied to
- (2) Percentage of applicants who applied to more than one department
- (3) Percentage who were offered at least one acceptance
- (4) Mean number of offers of admission among those who applied
- (5) Percentage of departments to which the applicant applied rated in three top groups
- (6) Percentage of accepting departments rated in three top groups
- (7) Percentage who were offered aid by at least one department

columns 5 and 6, it appears that Blacks apply to and are accepted by less prestigious departments, as are applicants of lower social class. (This may have to do with the costs of the higher ranked institutions, many of which are private.)

As shown in Table 5, applicants in English and microbiology applied to and were accepted by high prestige departments more frequently than applicants in education and psychology. Finally, applicants with better undergraduate grades applied to and were accepted by high prestige departments more frequently than applicants with poorer grades. In fact, grades appear to have a stronger relationship to the prestige of the departments of choice and accepting departments than any other variable.

As shown in column 7 (Tables 4 and 5), aid was offered more frequently to males, Hispanics, microbiology students, and students with higher grades.

Other Outcome Variables

In addition to information about applications and admissions per se, we were interested in other variables that help to provide a more comprehensive view of the admission process. That is, we were concerned with the extent to which, regardless of acceptances, applicants were actually pursuing advanced study, were attending full time, were pursuing doctoral degrees, and so forth. Specifically, we were interested in the following variables:

1. The percentage who said they were "very satisfied" with their current department
2. The percentage who were attending graduate school in the field they had planned to enter as applicants, a baseline figure concerning simple entrance to the field the respondents had planned to enter
3. Percentage attending any form of graduate or professional school, an even more basic figure reflecting entrance to advanced education of any type
4. Percentage who said they were not admitted to their desired program and consequently did not attend graduate or professional school
5. Percentage of those attending who were attending full time
6. Percentage of those attending who were studying for a doctoral degree or equivalent, another possible indication of the caliber of programs in which the respondents were enrolled
7. Percentage of those attending who were research or teaching assistants. Although holding a research or teaching assistantship does not necessarily mean the student is held in special regard by the

Table 5

Basic Admissions Data for Candidates Grouped
by Academic Characteristics

	Variables*							N
	1	2	3	4	5	6	7	
<u>Candidates grouped by:</u>								
<u>A. Intended Graduate Field</u>								
Education	1.2	12	81	1.3	25	23	21	1111
English	2.1	39	79	1.7	51	43	43	1121
Microbiology	2.9	46	73	2.1	43	41	52	349
Psychology	4.3	60	68	2.1	29	28	37	931
<u>B. Undergraduate GPA in Major</u>								
C and below	1.6	24	65	1.4	26	21	17	145
B-	1.6	22	79	1.3	22	24	23	353
B	1.9	29	76	1.6	30	28	29	1072
A-	2.9	46	76	1.8	42	37	40	1104
A	3.1	47	79	2.0	47	41	46	773

*Code to Variables

- (1) Mean number of institutions applied to
- (2) Percentage of applicants who applied to more than one department
- (3) Percentage who were offered at least one acceptance
- (4) Mean number of offers of admission among those who applied
- (5) Percentage of departments to which the candidate applied rated in three top groups
- (6) Percentage of accepting departments rated in three top groups
- (7) Percentage who were offered aid by at least one department

department, it is often the case and, in general, may be taken as a sign of the department's view of the student's merit.

We initially examined another variable, dropping out of graduate school. However, the dropout rate was so low and so similar across all groupings that it is not discussed here.

Other Outcome Variables: Results for Total Sample. As shown in Column 1 of Table 6, a little over a third of those attending graduate school were "very satisfied" with their current departments. (An additional 41 percent were "reasonably satisfied;" altogether, a figure of 78 percent being satisfied with their departments, perhaps a remarkable degree of satisfaction. The next response category was "I have mixed feelings.")

On a more global level, the majority of the GRE test takers were attending graduate school in the field they planned to enter when they took the GRE (column 2). Altogether, over two-thirds were studying in some graduate or professional field (column 3). Before concluding that a third were refused admission to advanced education, it should be noted that other results showed that 5 percent were still attending undergraduate college and 3 percent said that they had completed their graduate work. Only 2 percent said they had entered graduate school but dropped out. In addition, 7 percent said they had decided not to attend for financial reasons, and 11 percent said they had decided to postpone entry to gain some work experience. In fact, as shown in Column 4, only one in twenty said they had not been admitted to a department of their choice and, consequently, did not attend. The majority of attenders were full-time students (Column 5); the median student was also working 20 hours a week for pay. Twenty percent were working as research or teaching assistants (Column 7). Interestingly, as shown in Column 6, only a quarter of the respondents were studying for a doctorate; the rest were studying for master's degrees or certificates.

Thus, a hypothetical "typical" respondent had applied to one or two departments of moderate prestige, had been accepted by at least one department, again of moderate prestige, enrolled at a department in his or her field, was studying for a master's degree, was satisfied with the department, and was working about half time. The student was only slightly more likely to be studying full time than part time.

Other Outcome Variables: Results by Score Groups. Again, as shown in Table 6, higher scorers were more frequently studying full time and pursuing doctoral degrees. High scorers were somewhat more frequently employed as research or teaching assistants. There were relatively small and insignificant differences across score categories on the remaining variables.

Other Outcome Variables: Results by Personal and Academic Characteristics. Interestingly, in analyses not shown to conserve space, satisfaction with the department appeared to be unrelated to any personal

Table 6

Other Outcome Variables Grouped by Test Scores

	Variables*							N
	1	2	3	4	5	6	7	
<u>GRE Verbal Scores</u>								
420 and below	36	58	65	2	49	14	17	1039
421-500	36	60	66	5	50	12	15	650
501-580	39	62	67	5	61	24	22	772
581 and above	36	65	73	3	70	35	26	1051
<u>GRE Quantitative Scores</u>								
440 and below	37	60	66	6	48	19	17	1381
441-530	36	61	67	5	54	16	19	1021
531-620	36	63	66	4	67	29	23	695
621 and above	37	62	70	3	79	33	28	515
<u>GRE Analytical Scores</u>								
440 and below	37	60	67	6	48	20	17	1148
441-540	35	60	66	5	52	16	16	767
541-620	38	64	70	4	61	24	25	826
621 and above	36	62	69	3	77	36	25	771
Total for all candidates	37	61	68	5	58	25	20	3512

*Code to Variables

- (1) Percentage who were very satisfied with current department
- (2) Percentage attending graduate school in planned field
- (3) Percentage attending graduate or professional school of any type
- (4) Percentage who said they were not admitted to desired program, so did not enroll
- (5) Percentage of those attending who were attending full time
- (6) Percentage studying for doctoral degree or equivalent
- (7) Percentage employed as research or teaching assistants

characteristic, as did entry into the applicant's planned field. Full-time attendance was less common among women, minority groups, and students from lower socioeconomic status homes. Pursuit of a doctoral degree was reported with greater frequency among men and respondents from high social status homes. Research and teaching assistantships were more common among Whites.

When the data were examined by the academic characteristics of applicants, the results of most interest include the following: reports of not getting into a desired program and consequently not enrolling in graduate school were more frequent among applicants planning to study psychology and applicants with low grades. Applicants intending to study microbiology and psychology and applicants with better grades were pursuing doctoral degrees more frequently than other applicants. Finally, applicants in microbiology and English and applicants with higher grades obtained research and teaching assistantships more often than other applicants.

Views of the GRE Tests and the Admission Process

In addition to determining basic information about the admission process, it is important to gain information about applicants' views of the admission process; that is, what they think are the major factors in admissions, how they feel about the GRE tests, and what influence they felt the tests had on their departmental choices. Specifically, we examined the following: the percentage of respondents considering the GRE Aptitude Test and Advanced Tests to be fair (the options were "very fair," "pretty fair," "not too fair," and "unfair"); the percentage of respondents who said their GRE scores caused them to apply to more selective or less selective departments; and the percentage who felt that their GRE scores had no influence on their choices. We also examined the percentage of respondents who said that they had already applied to their departments of choice before they received their GRE scores. Finally, we also studied the percentage of respondents who said that various factors had a "great deal" of importance in the admission decisions of the departments to which they applied. These included college grades, the impression the applicants made during an interview, recommendations from professors, the results of the GRE, and the academic reputations of their colleges. (Two other variables were not included because they were so seldom considered important in admission: extracurricular activities, considered to have a great deal of importance by 2 percent of the respondents, and being a member of an ethnic minority, considered to have a great deal of importance by 4 percent of the respondents--although 20 percent of the Blacks and 14 percent of the Hispanics considered it to have a great deal of importance.)

Views: Results. The results show that most of the respondents considered the verbal, quantitative, and analytical sections of the GRE Aptitude Test to be fair. Specifically, the verbal section was considered fair by 75 percent, the quantitative section by 73 percent, and the analytical section by 71 percent.

This picture varied somewhat with respondents' test scores, with higher scoring respondents being more favorable. However, the majority in every score group, including the lowest, considered the Aptitude Test fair. Applicants with higher grades were more favorable. Applicants in fields related to the test were also more favorable--for example, applicants in English were more favorable about the verbal section than applicants in other fields. Minority students were much less favorable toward the test than Whites. Although the majority of those who had taken the GRE Advanced Tests considered the tests fair (62 percent), the percentage was noticeably lower than those for the GRE Aptitude Test.

Overall, only 3 percent of the applicants said that their GRE scores led them to choose more selective departments and only 7 percent that their GRE scores led them to choose less selective departments. Fifty-six percent said that their GRE scores had not affected their choice of departments, and another 34 percent said that they had already applied to departments before they received their GRE scores, so their scores, too, did not influence their choices. This picture varied little by test scores and personal characteristics. The only exception was that 16 percent of the psychology applicants felt that their GRE scores had led them to apply to less selective departments.

On the importance of various factors in admission to the departments to which they applied, undergraduate grades were clearly the strongest factor in the view of the respondents (60 percent thought they had a great deal of importance), followed by recommendations from professors (42 percent). The next three factors were considered to be of roughly the same importance: GRE scores (26 percent), impressions made in interviews (21 percent), and the academic reputation of the applicant's college (17 percent). Again, these views varied little by GRE scores or personal characteristics. The only exceptions were that applicants with higher grades placed more importance on grades, and applicants with higher test scores and those with higher grades placed more importance on recommendations.

Discussion

The hypothetical "typical" GRE applicant in this sample had applied to two or three departments, usually of moderate prestige, received acceptance at at least one of these departments, and was studying in his or her field the next academic year after taking the GRE. The respondent was usually studying for a master's degree. Most respondents thought that the GRE tests were generally fair and very few thought that they were clearly unfair. In addition, the great majority of respondents did not think that their GRE scores had affected their choice of departments. They felt that GRE results were less important than undergraduate grades and recommendations from professors in the admission decisions made by the departments to which they applied.

This general picture varies somewhat for respondents grouped by GRE scores and personal characteristics, but in general it is remarkably similar across groups. The most important result of this project may be that there was some evidence for self-selection among test takers choosing departments to which to apply. However, most of this self-selection seemed to be related primarily to undergraduate grades and secondarily to GRE test scores. There is at least one good reason for this. A sizable proportion of the respondents applied to departments before receiving their GRE scores. In addition, most respondents probably found that their GRE scores were fairly consistent with their undergraduate grades.

Most respondents did not report that their GRE scores played a very great role in their educational decisions and did not believe they were very important in the decisions that were made about them. That is, across score categories, respondents were offered admission to at least one department--that is, they would be able to go to graduate school with approximately the same frequency. And, in fact, respondents in each score category reported that they were attending graduate or professional school with approximately the same frequency. The percentage who said they were not admitted to the department of their choice and, consequently, did not enroll was very small in every score group. The percentage who reported that their GRE scores had led them to apply to less selective departments was very small and the majority said that their GRE scores had had no influence on their choice of departments. One of the striking findings was that these percentages varied little by score category. Respondents viewed undergraduate grades as the most important factor in admissions followed by recommendations from professors. GRE scores were viewed as considerably less important. The views of the importance of GRE scores were very much the same across score categories.

Put all together, these data suggest that most applicants to graduate school in this sample did not see GRE scores as the prime influence on their educational outcomes. In their view, their own undergraduate grades and the recommendations of their professors were the major influences.

GRE scores were related to a number of variables in the application-admission-enrollment process. Higher scoring respondents tended to apply to more departments and to more prestigious departments than lower scoring respondents. They also were accepted by more departments and by more prestigious departments. They were offered aid and assistantships more often. They attended full time more frequently and were more frequently in doctoral programs. Interestingly, they reported no greater or less satisfaction with their departments. Expectedly, they tended to think the GRE tests were fairer than did lower scoring respondents. Of course, all these results are complicated by the overlap with undergraduate grades. High scorers also tended to receive higher grades. However, the results by both grades and test scores generally suggested an additive effect.

The chief reservation about these results is the degree to which the respondents were representative of the entire sample. It is probable that applicants who were not accepted to graduate school were less likely to

respond. However, if this were strongly the case, it seems plausible that some residual evidence of this trend would show up in the results. In fact, the basic picture of the results remained the same no matter how we looked at the data. The results may provide an overestimate of the percentages of applicants who obtain admission to graduate departments. However, it seems unlikely that a number of other important results would be greatly different if a much higher response rate were achieved. These include the relatively small number of departments to which applicants apply, the relatively small role applicants felt their GRE scores had in their decisions, and the respondents' feeling that their grades and professors' recommendations were the most important factors in admission, followed by their GRE scores. Other trends related to the GRE score levels might be even stronger with a larger sample. These include the trend for higher scorers to apply to a greater number of departments and more prestigious departments, to receive more offers of financial aid, to attend full time more frequently, to be in doctoral programs more frequently, and to consider the GRE tests fair more frequently.

Another indication of the reasonableness of these findings is the past research on graduate admissions. First, the studies based on individual application and acceptance data present a similar picture. In a follow-up of a national sample of college seniors (Davis, 1965), Miller (1963) found that among seniors who said that they definitely planned to attend graduate school the next year, 91 percent were actually studying in graduate school. In addition, among those who tentatively planned to attend graduate school, 57 percent were actually doing so the next year.

In a sample from the early seventies, Baird, Hartnett, and Clark (1973) found that the majority of a large national sample of seniors who planned to attend graduate school had applied to two or fewer institutions. In the spring of their senior year, 70 percent had already been accepted by at least one department. More recently, Presley (1981), using data from the national longitudinal study of the high school class of 1972, examined the educational outcomes of those who were college seniors in 1976. Of those who applied to graduate school, "only 10 percent of the sample do not gain admission to any program." Presley also found that 69 percent applied to only one program.

How does this agree with institutional figures about acceptance rates? In his classic 1960 book on graduate education, Berelson reported the acceptance rates among the national sample of graduate schools he studied. Among the top 12 universities in the country, 48 percent of those who applied were accepted. Among all the other universities, 71 percent of the applicants were accepted. If we assume, as is consistent with the present results, that applicants to the most prestigious programs might file three to four applications and that applicants to other programs might file one or two applications, it seems likely that the great majority of those who apply will be admitted. More recently, Solmon (1976) found that in a sample of 85 universities, approximately 65 percent of the applications were accepted except among the most prestigious departments, where approximately 40 percent were accepted. Again, if the

differential pattern of number of applications holds (and, of course, the attendant self-selection), the great majority of applicants are probably admitted somewhere. Finally, Presley (1981) found that 81 percent of applications to specific graduate programs were accepted. Presley also found evidence for self-selection based upon academic ability.

It is interesting to compare these figures with figures given in guides to graduate departments. For example, the guide Graduate Study in Psychology for 1979-80 (APA, 1981) reports a range of department-reported acceptance rates, ranging from departments like Wichita State, which admitted almost all its applicants, to departments like Yale, which accepted 6 percent of its applicants. A random sampling of 50 departments from the guide shows an acceptance rate of 43 percent for general psychology programs and an acceptance rate of 14 percent for clinical programs. The results reported in the present study showed that the average respondent planning to study psychology had applied to 4.3 departments and that 68 percent reported at least one acceptance. Again, the multiple applications may account for the discrepancy between the acceptance rates reported by departments and the rates reported by the respondents to this study. (It should be noted that psychology programs - especially clinical programs - are currently among the most selective departments on most campuses).

In summary, the results of the present study appear to be generally consistent with the other studies of graduate acceptance rates conducted over 20 years.

The results concerning the importance of test scores versus other kinds of admissions data are also consistent with other research. For example, Baird, Hartnett, and Clark (1973), in the national sample of college seniors noted before, found that, when the seniors who planned to attend graduate school were asked to rate the importance of 14 factors in gaining acceptance to graduate school, the following percentages thought each factor was important: "good overall grades," 69 percent; "good grades in one's major field," 65 percent; "strong faculty recommendations," 53 percent; "high scores on an admissions test," 35 percent; and the "relationship between college major and graduate field," 35 percent. Powers and Lehman (1982) found that GRE test takers thought that graduate schools place most emphasis on undergraduate grades, followed by undergraduate major, faculty recommendations, academic reputation of the undergraduate college the applicant attended, and last, GRE scores. The present results are quite consistent with this other literature.

In general, the respondents judged the GRE tests to be fair, did not perceive them as major stumbling blocks limiting their access to graduate study, and felt the tests did not cause them to go to less desirable departments.

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- Appendix A

Characteristics of Respondents and Nonrespondents

Appendix A

Characteristics of Respondents and Nonrespondents

	Non respondents to First Survey	Respondents to First Survey	Respondents to Second Survey
Percent who took GRE previously	22	23	24
Percent describing self as:			
Black	17	10	7
Hispanic	7	5	4
White	72	82	85
Other	4	3	4
Average size of undergraduate college	6,500	6,500	6,500
Percent from colleges that were:			
Public	66	64	64
Private--Independent	14	15	15
Private--Church Related	19	21	21
Average year in which bachelor's degree was received	1976	1976	1976
Percent whose highest degree goal was:			
Masters	50	47	47
Intermediate	2	2	2
Doctorate	44	47	48
Postdoctoral study	4	4	3
Percent who have attended graduate school previously	36	33	35
Mean self-reported under- graduate GPA on 7-point scale in major field	5.3	5.5	5.6
In last two years	5.4	5.6	5.6
Mean number of hours spent working	8	8	8
Mean number of hours spent in community service	2	2	2
Highest education attained by father on 6-point scale	3.0	3.2	3.2
Highest education attained by mother on 6-point scale	2.7	2.8	2.8
Mean family income on 4-point scale	2.5	2.5	2.5
Mean GRE score on:			
Verbal	478	517	530
Quantitative	451	490	501
Analytical	476	516	530

Appendix B

Address Update Survey

EDUCATIONAL TESTING SERVICE



PRINCETON, N.J. 08541

609-921-9000

CABLE-EDUCTEST5VC

Dear GRE Applicant:

The GRE program is beginning a project to examine the role of the GRE test in graduate admissions. We simply want to know where students apply, where they are admitted, and where they enroll in graduate school. This information will help us make GRE services better for students. We would like to send you a very brief questionnaire next fall to obtain this information. To do so, we need an address where the questionnaire would reach you. The address above is one you reported on your GRE registration form. Please show any changes in the space at the bottom of this letter so that the address is one where the questionnaire would reach you. This may be a "permanent" address.

First, would you please answer a few questions? (Please circle the appropriate number.)

- A. Do you plan to enter graduate school in Fall, 1980, or later?
 - 1. Fall, 1980
 - 2. Later
 - 3. Am already in graduate school
- B. To how many departments have you applied?
 - 1. None
 - 2. One
 - 3. Two
 - 4. Three or more
- C. How many departments have accepted you?
 - 1. None
 - 2. One
 - 3. Two
 - 4. Three or more
- D. If you have been accepted, was one your first choice department?
 - 1. Yes
 - 2. No

If no changes, check here.

PLEASE PRINT

<div style="border-top: 1px dashed black; border-bottom: 1px dashed black; height: 15px; width: 100%;"></div>		
NUMBER AND STREET OR P.O. BOX NO.		
<div style="border-top: 1px dashed black; border-bottom: 1px dashed black; height: 15px; width: 100%;"></div>		<div style="border-top: 1px dashed black; border-bottom: 1px dashed black; height: 15px; width: 100%;"></div>
CITY	STATE	U.S. ZIP

Please return this letter in the enclosed business reply envelope. Thank you for your help.

Leonard Baird

Appendix C

Second Follow-up Survey

EDUCATIONAL TESTING SERVICE



PRINCETON, N.J. 08541

609-921-9000
CABLE-EDUCTESTSVC

Dear GRE Applicant:

A few months ago we sent you a letter describing a project to examine the role of the GRE test in graduate admissions. We simply want to know where students apply, where they are admitted, and where they enroll in graduate school. This information will help us make GRE services better for students. As we mentioned then, we are sending you a questionnaire to obtain this information. Would you please take a few minutes and answer a few questions. Your answers will help us improve the GRE program. Thank you for your help.

A. What are you doing now? (Please circle all that apply.)

- 1 Still attending undergraduate college.
- 2 Working for pay at a full-time or part-time job
- 3 Homemaker
- 4 On active duty in the Armed Services.
- 5 Attending graduate school in the field I had planned to enter last spring.
- 6 Attending graduate school in a field other than the one I had planned to enter last spring.
- 7 Attending professional school
- 8 Looking for work or temporary layoff from work.
- 9 Other

B. If you are attending graduate or professional school, are you:

- 1 Attending full time.
- 2 Attending part time.

C. Why did you take the GRE?

- 1 It was required of all applicants
- 2 It was required to be able to continue or complete my program.

D. If you are in graduate or professional school, what kind of degree are you studying for? (Circle one.)

- 1 A certificate
- 2 A Master's degree or equivalent.
- 3 A Ph.D. or equivalent.
- 4 An M.D., L.L.B., B.D., D.D., D.D.S., or equivalent.
- 5 Other

E. How many hours a week are you employed for pay?

- 1 Not working
- 2 1-10 hours
- 3 11-20 hours
- 4 21-30 hours
- 5 31-40 hours
- 6 More than 40 hours

F. If you are employed, is your position:

- 1 A Research Assistantship.
- 2 A Teaching Assistantship.
- 3 Another type of university position.
- 4 A non university position related to my field of study.
- 5 A non university position unrelated to my field of study.

G. To which departments did you apply, at which were you offered admission, at which did you enroll, and which was your first choice? (Answer for your first four applications.)

Names of departments you applied to. (Please write in names.)	Check here if you were offered admission at this department.		Check here for the department at which you enrolled.	Which departments were your first, second, third, and fourth choice. (Write in numbers.)
	Yes	No		
1. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

H. In all, to how many departments did you apply?

Please write in number. _____

I. In all, how many offers of admission did you receive?

Please write in number. _____

J. How many offers of financial assistance did you receive?

Please write in number. _____

K. If you are enrolled in graduate or professional school, how satisfied are you with your department?

- 1 Very satisfied
- 2 Reasonably satisfied
- 3 I have mixed feelings
- 4 Dissatisfied
- 5 Very dissatisfied

L. If you are not currently enrolled in graduate or professional school, what are the reasons for your decision? (Circle as many as apply.)

- 1 Am still enrolled in an undergraduate college.
- 2 Decided not to attend for financial reasons.
- 3 Was not admitted to the program I wanted.
- 4 Did enroll but dropped out.
- 5 Decided to postpone entry so I could get some work experience.
- 6 Simply am tired of being a student.
- 7 Completed my graduate work.
- 8 Other

M. The GRE test consisted of three basic parts--a verbal, quantitative, and analytical section. In addition you may have taken a GRE Advanced test. Please rate these tests on how fair or unfair you thought they were as tests of your abilities. (Circle one number in each line.)

Circle <u>one</u> number for <u>each</u> item:	Very Fair	Pretty Fair	Not Too Fair	Unfair
The verbal section of the GRE	1	2	3	4
The quantitative sec- tion of the GRE	1	2	3	4
The analytical section of the GRE	1	2	3	4
GRE Advanced test(s)	1	2	3	4

N. Did your GRE test scores cause you to change your mind about the kinds of schools you applied to? (Circle one number.)

- 1 Yes, I set my sights higher and applied to more selective departments
- 2 Yes, I set my sights lower and applied to less selective departments
- 3 No change in the departments I applied to
- 4 Not applicable--I had already applied to the departments before I received my GRE scores

O. Based on the impressions you have formed or what you may have heard, how much importance do you think the departments you applied to placed on each of the following in deciding on your application for admission?

Circle <u>one</u> number for <u>each</u> item:	A Great Deal	A Fair Amount	Not Very Much	None at All
Extra-curricular activities like choir, band, orchestra, athletics, drama, clubs, etc.	1	2	3	4
Grades or academic standing in college	1	2	3	4
The impression you made during an interview with a representative of the university	1	2	3	4
Recommendations from professors	1	2	3	4
Results of the GRE	1	2	3	4
The academic reputation of your college	1	2	3	4
Being a member of an ethnic minority	1	2	3	4

We would appreciate any comments you may have about the role your GRE scores played in your graduate school decisions. Please use the space below for comments.

Please return this letter in the enclosed business reply envelope. Thank you again for your help.

Leonard L. Baird

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