

DOCUMENT RESUME

ED 219 389

TM 820 096

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 TITLE The Use of and Satisfaction with the GMAT Test Disclosure Service Materials.
 INSTITUTION Educational Testing Service, Princeton, N.J.
 SPONS AGENCY Graduate Management Admission Council, Princeton, NJ.
 REPORT NO ETS-RR-81-14; GMAC-RR-81-1
 PUB DATE Feb 81
 NOTE 58p.

EDRS PRICE MF01/PC03 Plus Postage.
 DESCRIPTORS *College Entrance Examinations; *Disclosure; Higher Education; Questionnaires; Scores; *Student Attitudes; *Test Results
 IDENTIFIERS *Graduate Management Admission Test; *Test Disclosure

ABSTRACT

Beginning in 1980, all those who took the Graduate Management Admission Test (GMAT) could request a test disclosure package containing a "mini-testbook" of the questions used in scoring the candidate's test, a copy of the candidate's answer sheet, an answer key, conversion tables, and scoring information. The purpose of this study was to examine test-takers' reactions to these materials and to investigate examinees' perceptions of the effects of test disclosure in general. Respondents to a questionnaire constituted 11.4 percent of the users of the Test Disclosure Service, and were generally higher scoring than GMAT test-takers as a whole. Overall, use of and satisfaction with the materials was high. The respondents were favorably disposed toward test disclosure.
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THE USE OF AND SATISFACTION WITH THE
GMAT TEST DISCLOSURE SERVICE MATERIALS

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Karen Jensen Finkelstein

GMAC Research Report 81-1
ETS Research Report RR-81-14

February 1981

This research was funded by
the Graduate Management Admission Council.

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The Use of and Satisfaction with the GMAT-Test

Disclosure Service Materials

Introduction

Following the enactment of the New York standardized testing law* that required public disclosure of standardized tests used for college and graduate admissions in New York after January 1, 1980, the Trustees of the Graduate Management Admission Council initiated a new service--the Graduate Management Admission Test Disclosure Service (GMAT-TDS)--to provide GMAT examinees with the mandated materials. By law, each New York examinee acquired the right to obtain a copy of the test questions that were used in calculating his or her raw score, his or her answer sheet together with a copy of the correct answer sheet for the same test with the questions counting toward his or her raw score so marked, and a statement of the raw score used to calculate the scores already sent to the examinee. In compliance with this legislation, but on a world-wide basis, the GMAC Trustees offered to all examinees a test disclosure package containing a "mini-testbook," a copy of the candidate's answer sheet, a computer-produced information sheet, a scoring key, conversion tables, and a scoring and interpretation leaflet. The fee for this service, which was first offered for the January 26 and 28, 1980, administrations of the Graduate Management Admission Test (GMAT), was \$5.95. A sample of these materials appears in Appendix A. The purpose

*The New York LaValle Bill, an act to amend the education law in relation to standardized testing (S. 5200-A, A. 7668-A, Cal. No. 1215) adds a new article seven-A to the education law.

of this study was to examine test-takers' reaction to these materials and to investigate examinees' perceptions of the effects of test disclosure in general.

Procedure

This study was conceived of as exploratory, since at the time of its design information was not yet available concerning the population that would ultimately avail itself of the GMAT Test Disclosure Service. Estimates of anticipated Test Disclosure Service use ranged from 10% to 25% of GMAT examinees; the GMAT Program planned for an initial volume midway between.

For this study, all GMAT examinees who ordered the Test Disclosure Service materials following the January 26 and 28, 1980, GMAT administrations were sent a questionnaire and a return envelope along with the requested materials. The questionnaire was anonymous and no follow-up of non-respondents was planned or undertaken. A copy of the questionnaire, showing the percentage of respondents who chose each option, appears in Appendix B.

Results

Test Disclosure Service Use, Survey Response Rate and Response Bias

The use of the GMAT Test Disclosure Service for the January 26 and 28, 1980, GMAT administrations was not high. Of the 47,778 examinees for whom scores were reported for these administrations, 5,347 or 11.2% actually ordered the materials provided by the Service and were sent a

questionnaire. Of these, 611 or 11.4% returned the questionnaire by the cutoff date for inclusion in this study.

The majority of respondents were male (66.2%) and white (77.9%); 58.2% had received bachelor's degrees from public undergraduate institutions. The respondents resided in all geographical regions of the U.S. as well as outside the U.S. (17.2%). Generally, foreign* respondents were male. Although a large percentage of the respondents resided in New York State (11.2%), this percentage was smaller than the total percentage of GMAT test-takers from New York State (12.9%). Detailed information about the characteristics of the respondents, by sex, is presented in Table 1.

In comparison with the total population of examinees who took the GMAT in January and with the examinees who ordered the GMAT Test Disclosure Service materials following the January administrations, the respondents differed significantly on both GMAT score and ethnic background, as shown in Table 2. (Although data on the sex of the respondents were available, the sex distribution of the GMAT examinees and of the GMAT-TDS users was not available, so that it was not possible to make this comparison for the January 1980 GMAT administrations.) The respondents were more likely to self-report higher GMAT total scores and to describe themselves as Asian than either comparison group. Since the sample was self-selected and the respondents differed from both the total examinee population for the January administrations of the GMAT, and from the requester group, conclusions about the GMAT-TDS user population drawn from these data must be viewed with caution.

*The term "foreign" is used throughout to designate non-U.S. resident respondents.

Respondent Use of GMAT-TDS Materials

Test disclosure materials sent to GMAT examinees included a copy of the candidate's GMAT answer sheet, a mini-test book containing the questions used in scoring the candidate's test, an answer key, conversion tables, and appropriate scoring and information sheets. The survey inquired about why the materials had been ordered and about the use of each component of the materials.

Rationale for use. The fourth item on the survey was an open-ended question that asked, "Why did you order the GMAT Test Disclosure Service? Please indicate the most important reason for your order." Over 98.5% of the respondents answered this question, giving over 57 distinct reasons. These reasons were collapsed into six major categories that accounted for 69% of the respondent reasons for ordering the service.

Most respondents ordered the disclosure service to learn from their mistakes, to evaluate their own strengths and weaknesses, to prepare for a retest, to understand a low score, to identify correct answers, or to learn how the scores were calculated. A summary of the major reasons for ordering the GMAT-TDS is presented in Table 3.

Extent of use. The survey also included eight questions about the usage of various components of the materials. Overall, the materials were used heavily by the respondents. As Table 4 indicates, the scoring key and the mini-test were more heavily used (by over 90% of the respondents) than the raw score (corrected for guessing) computation materials and scale score conversion materials.

Respondent characteristics and use. Slight differences in GMAT-TDS materials used by respondents having different characteristics were observed. These differences are presented in Tables 5-11. Males were more likely to report using raw score computation and conversion materials than were females (Table 5), and females were more likely to report using the mini-test. Although only 15 blacks responded to the questionnaire, it appears that black respondents were less likely to report using raw score computation and conversion materials than all other ethnic groups, with the exception of the American Indian group for whom the number of respondents (4) was far too small for meaningful comparison (Table 6). Size of undergraduate institution was not related to usage (Table 7), but respondents from church-related undergraduate institutions were more likely to report using the materials (Table 8). Respondents who reported having sent their GMAT scores to certain selective institutions (Harvard, Stanford, and the University of Pennsylvania) were significantly more likely to report using all of the raw-score computation and conversion materials (Table 9). Regional variations in usage were also observed, with foreign respondents reporting significantly greater usage than U.S. respondents (Table 10). Raw score computation and conversion materials were used more heavily by respondents reporting higher scores (Table 11).

A multiple regression analysis of candidate characteristics and usage was conducted to explore the independent effect of these characteristics on usage. The names and definitions of the variables used in this regression analysis and in the regression analyses reported in Tables 16 and 19 are presented in Table 12.

Usage of GMAT-TDS materials was hypothesized to be a function of both respondent characteristics and GMAT score, with lower scoring candidates seeking to improve their relative position by identifying scoring errors. To test this hypothesis, a regression analysis of GMAT-TDS usage as a function of self-reported GMAT total scale score and respondent characteristics (sex, ethnicity, size of undergraduate institution, type of undergraduate institution, application to certain highly selective graduate schools, and foreign residence) was conducted. GMAT-TDS usage was operationalized as a single index that was computed, first reversing the direction of the eight usage items so that the higher value represented greater usage, and then summing across all eight items. The possible range for this index was 8-16; the mean of this index for the 584 respondents who answered these items was 14.95, indicating a high degree of use.

Two regressions with different combinations of independent variables were run. The results of these analyses are presented in Table 13. Other background characteristics being equal, GMAT-TDS materials were used less by non-Asian minority respondents, more by foreign respondents, and more by those who were applying to certain selective graduate schools of management. With self-reported GMAT total scale score held constant, usage was higher only among foreign respondents. The hypothesized effect of GMAT score on usage was not observed.

Respondent Satisfaction with GMAT-TDS Materials

Satisfaction with the GMAT-TDS materials was assessed by two questions, the responses to which are summarized in Table 14. The vast majority of

those responding were satisfied with the materials (88.6%) and the score information (85.7%) they received. Most respondents (93.1%) reported that they would recommend the service to a friend. The price of the service was also positively evaluated, with the majority (61.7%) responding that the fee for service was "about right"; 46.8% of the respondents thought they would have ordered the GMAT-TDS materials even if the fee had been as much as \$4 higher.

Respondent characteristics and satisfaction. Some differences in satisfaction with the GMAT-TDS materials were observed between different groups of respondents (Table 15). These, on a whole, were small, and for no group was the average response much less than "satisfied" for either the materials overall or for the score information materials.

To determine whether satisfaction with the test disclosure materials differed between various groups of respondents when other characteristics were held constant, a regression analysis of satisfaction with the GMAT-TDS materials as a function of respondent characteristics was conducted. For this analysis, a single index of satisfaction was computed by first reversing the direction of the two satisfaction items so that the higher value represented greater satisfaction, and then summing the two items. The possible range for this index was 2-10; the mean was 8.37 for the 600 respondents who answered these items.

Three regressions with different combinations of variables were run. The results of these analyses are presented in Table 16. Other background characteristics being equal, the first column of Table 16 shows that minority respondents were less satisfied with the materials than non-minority respondents were, while those applying to certain selective graduate schools

of management were more satisfied with the materials. The second column of Table 16 indicates that respondents with higher self-reported GMAT scores were more satisfied with the materials than lower scoring respondents were; the inclusion of GMAT score as an independent variable reduced to statistical nonsignificance the effect on satisfaction of applying to certain selective graduate schools of management.

Clarity and satisfaction. The perceived clarity of the instructions for GMAT-TDS use was thought to be one possible determinant of user satisfaction. The clarity of the instructions was assessed by three questions, which were combined into a single index by first reversing the direction of the three items so that the higher value represented greater clarity, and then summing across all three items. The possible range for this index was 3-15; the mean was 12.87 for the 527 respondents who answered these questions. A regression analysis of satisfaction as a function of clarity and background characteristics was run; the result of this analysis is presented in column 3 of Table 16. Other background characteristics being equal, the clearer the instructions were perceived to be by those who used the materials, the more satisfied they were with the materials. The inclusion of perceived clarity of instruction, as an independent variable, reduced to statistical nonsignificance the effect of GMAT score on satisfaction, but did not alter the effects of the other characteristics.

Respondent Attitude Toward Test Disclosure

Eight statements regarding test disclosure were included in the survey to assess respondents' attitudes toward test disclosure in general.

Four of the statements represented the articulated positions of test disclosure advocates; four of the statements represented the concerns of test developers and publishers.

General attitude toward test disclosure. The percentage of respondents agreeing with each of the eight statements is presented in Table 17. From this table it is clear that the overwhelming majority of the respondents agreed that "test-takers should receive detailed information about the test and how their scores are computed" (88.7%) and that "test disclosure will enable test-takers to learn from reviewing the questions and comparing their answers with the correct answers" (87.8%). Respondents also agreed that "test disclosure will make the testing organizations more accountable to the public" (74.8%). By comparison, only 7.0% agreed that disclosure costs will place an undue burden on test-takers, and 16.2% agreed that disclosure will lead to a proliferation of coaching schools.

A single index of respondent attitude toward test disclosure was computed by first reversing the direction of half the items so that the higher value represented a positive attitude toward disclosure, and then summing across all eight items. The alpha-coefficient for reliability of this index was computed as .61. The possible range for this index was 8-24; the mean was 20.4 for the 589 respondents who answered these questions, indicating that the respondents were strongly in favor of test disclosure.

Respondent characteristics and attitude toward test disclosure. Some differences in attitudes toward test disclosure were observed between different groups of respondents (Table 18). These differences were, on the whole, not statistically significant.

To determine whether attitudes toward test disclosure differed between various groups of respondents when other characteristics were held constant, regression analyses of attitude toward test disclosure as a function of satisfaction, of GMAT self-reported total scale score, and of other respondent characteristics were conducted. The results of these analyses are presented in Table 19. Only foreign respondents were consistently less favorably disposed to test disclosure. No other characteristic had consistent effect on attitude toward disclosure, and the overall explanatory power of the estimation was low, with less than 2% of the variance in attitude being explained by candidate characteristics.

Conclusion

This report describes the results of an analysis of the responses of 611 GMAT-TDS users who completed a questionnaire inserted into the GMAT-TDS materials they ordered following the January 1980 GMAT administrations. The respondents constituted 11.4% of the GMAT-TDS user group, and were generally higher scoring than either GMAT-TDS users or GMAT test-takers as a whole.

The questionnaire asked GMAT-TDS users about their use of the materials, their satisfaction with the materials, and their attitudes toward test disclosure in general.

Univariate, bivariate and multivariate analyses were conducted. The results may be summarized as follows:

1. Overall, use of all materials among respondents was high.

2. Satisfaction with the materials provided by the service was also high.
3. The respondents were favorably disposed toward test disclosure.
4. Use of test disclosure materials was higher among non-U.S. resident respondents than among U.S. resident respondents, when the following other variables were held constant: sex, ethnicity, size and type of undergraduate institution, application to certain selective graduate schools of management, and self-reported GMAT total score.
5. Satisfaction with the test disclosure materials was lower for self-reported ethnic minority respondents including non-white "others" than for white respondents and higher for higher scoring respondents than for lower scoring respondents, holding constant these variables and sex, size and type of undergraduate institution, and application to certain selective graduate schools of management.
6. Respondents who perceived the instructions for using the material to be relatively more clear were also relatively more satisfied with the materials, other variables held constant.
7. Attitude toward test disclosure was less positive for non-U.S. resident respondents than for U.S. resident respondents, holding constant sex, ethnicity, size and type of undergraduate institution, and self-reported GMAT total score.

Characteristics of Respondents

<u>Characteristics</u>	<u>Sex of Respondent</u>					
	<u>Male</u>		<u>Female</u>		<u>Total</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
<u>Sex</u>						
Male	399	100%	-	-	399	66.2
Female	-	-	204	100%	204	33.8
<u>Ethnicity</u>						
American Indian	3	0.8	1	0.5	4	0.7
Black/Negro/Afro-American	12	3.1	3	1.5	15	2.5
Caucasian/White	287	73.0	174	87.4	461	77.9
Hispanic	8	2.0	2	1.0	10	1.7
Oriental/Asian	52	13.2	19	9.5	71	12.0
Other	31	7.9	0	0.0	31	5.2
<u>Size of Undergraduate Institution</u>						
Fewer than 1,000	19	4.9	19	9.0	37	6.3
1,000 - 4,999	105	27.1	52	26.1	157	26.8
5,000 - 9,999	80	20.07	34	17.1	114	19.5
10,000 - 19,999	91	23.5	41	20.6	132	22.5
20,000 or more	92	23.8	54	27.1	146	24.9
<u>Type of Undergraduate Institution</u>						
Public	232	59.3	111	55.5	343	58.0
Private - No church affiliation	113	28.9	64	32.0	177	29.9
Private - Church affiliation	46	11.8	25	12.5	71	12.0
<u>Graduate Institution Applied to</u>						
Certain Selective	86	21.6	31	15.2	117	19.4
Other	313	78.4	173	84.8	486	80.6
<u>Regional Residence</u>						
New York State	37	9.3	30	14.8	67	11.1
New England	32	8.0	16	7.9	48	8.0
Middle Atlantic	29	7.3	26	12.8	55	9.1
South Atlantic	40	10.0	18	8.9	58	9.6
East North Central	55	13.8	40	19.7	95	15.8
West South Central	8	2.0	3	1.5	11	1.8

Table 1 (cont'd)
Characteristics of Respondents

Characteristics	Male		Female		Total	
	N	%	N	%	N	%
<u>Regional Residence (continued)</u>						
West North Central	16	4.0	2	1.0	18	3.0
West South Central	16	4.0	9	4.4	25	4.2
Mountain	16	4.0	4	2.0	20	3.3
Pacific	61	15.3	40	19.7	101	16.8
Outside U.S.	89	22.3	15	17.4	104	17.3
<u>GMAT Total Score</u>						
700-800	20	5.1	2	1.0	22	3.7
600-699	98	24.9	27	13.5	126	21.7
500-599	124	31.5	91	44.5	215	36.0
400-499	86	21.8	56	27.5	142	23.7
300-399	55	14.0	21	10.5	76	12.7
200-299	11	2.8	6	3.0	17	2.8

Table 2

Comparison of GMAT-Test Disclosure Service User Respondents,
GMAT-Test Disclosure Service Users and GMAT Non-requesters on Selected Characteristics

<u>Characteristics</u>	<u>GMAT-TDS User Respondents</u>		<u>GMAT-TDS Users</u>		<u>GMAT Non-Requesters</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
Sex						
Male	399	66.2%	Not Available		Not Available	
Female	204	33.8	Not Available		Not Available	
Ethnic Background						
American Indian	4	0.7	13	0.3%	86	0.2%
Black	15	2.5	212	5.7	1818	5.9
Caucasian/White	462	77.9	2902	77.5	25287	81.8
Mexican-American/Puerto Rican	10	1.7	48	1.3	366	1.2
Oriental/Asian	71	12.0	229	6.1	1098	3.6
Other	31	5.2	91	2.4	533	1.7
GMAT Total Scale Score						
700-800	22	3.7	63	1.2	304	0.7
600-699	126	21.1	537	10.0	4122	9.8
500-599	215	36.0	1472	27.5	12458	29.5
400-499	142	23.7	1816	34.0	14606	34.6
300-399	76	12.7	1177	22.0	8194	19.4
200-299	17	2.8	280	5.2	2481	5.9

Note: Statistics regarding GMAT-TDS users from Memorandum from Marion G. Epstein, August 14, 1980.

Statistics regarding GMAT non-requesters from Memorandum from Marion G. Epstein, August 14, 1980.

Table 3

Reasons Given by Respondents for
Ordering GMAT-TDS Materials

<u>Reasons</u>	<u>Respondents</u>	
	<u>N</u>	<u>%</u>
Learn from mistakes/determine wrong answers	124	20 %
Evaluate performance	111	19
Prepare for retest	80	12
Check low score	50	9
Identify correct answers	49	8
Recalculate score	40	7
Satisfy curiosity	38	6
Verify score (no intent to retest)	28	5
Examine GMAT response to LaValle Bill	7	1
Obtain actual test and own answers	7	1
Report complaint about test fairness	5	1
Obtain as study aid for friends	4	1
Other	52	10

Table 4

Use of Various GMAT-TDS Materials
by Respondents

Materials	Respondents	
	N	%
Answer Key	569	93.7%
Raw Score Computation-Verbal	506	83.6
Raw Score Computation-Quant.	508	84.1
Raw Score Computation-Total	488	80.9
Conversion Table-Verbal	517	86.2
Conversion Table-Quant.	519	86.4
Conversion Table-Total	514	86.1
Mini-Test	541	90.2

Note: Percent is based upon the number of respondents answering the item; omits are not included.

Table 5
Usage of Various GMAT-TDS Materials, by
Sex of Respondent

<u>GMAT-TDS Materials</u>	<u>Sex of Respondent</u>		χ^2
	<u>Male</u>	<u>Female</u>	
Answer Key	94.9%	91.2%	n.s.
Raw Score Computation-Verbal	84.8	81.2	n.s.
Raw Score Computation-Quant.	86.4	79.6	$p < .05$
Raw Score Computation-Total	83.8	75.0	$p < .05$
Conversion Table-Verbal	87.6	83.4	n.s.
Conversion Table-Quant.	88.4	82.4	$p < .10$
Conversion Table-Total	88.1	82.1	$p < .10$
Mini-Test	88.1	94.1	$p < .05$

Note: Percent is based on number of respondents reported in Table 1.

Table 6

Usage of Various GMAT-TDS Materials, by
Ethnicity of Respondent

<u>GMAT-TDS Materials</u>	<u>Ethnicity of Respondent</u>						χ^2
	<u>American Indian</u>	<u>Black</u>	<u>White</u>	<u>Hispanic</u>	<u>Oriental</u>	<u>Other</u>	
Answer Key	75.0%	80.0%	93.9%	100.0%	91.5%	100.0%	p<.10
Raw Score Computation-Verbal	50.0	50.0	84.1	90.0	82.9	90.0	p<.01
Raw Score Computation-Quant.	50.0	57.1	84.5	90.0	84.3	90.0	p<.05
Raw Score Computation-Total	50.0	42.9	81.0	100.0	82.9	90.3	p<.01
Conversion Table-Verbal	50.0	64.3	86.0	90.0	88.4	93.5	p<.05
Conversion Table-Quant.	50.0	64.3	86.2	90.0	90.0	93.5	p<.05
Conversion Table-Total	50.0	42.9	86.3	100.0	89.9	93.5	p<.001
Mini-Test	100.0	86.7	90.4	90.0	88.2	87.1	n.s.

Note: Percent is based on number of respondents reported in Table 1.

Table 7

Usage of Various GMAT-TDS Materials, by
Size of Respondent's Undergraduate Institution

<u>Material</u>	<u>Size of Respondent Undergraduate Institution</u>					<u>χ^2</u>
	<u>1,000</u>	<u>1,000- 4,999</u>	<u>5,000- 9,999</u>	<u>10,000- 19,999</u>	<u>20,000 +</u>	
Answer Key	91.9%	93.6%	94.7%	94.7%	92.6%	n.s.
Raw Score Computation-Verbal	81.1	83.9	86.7	84.8	81.1	n.s.
Raw Score Computation-Quant.	83.8	85.7	88.5	84.8	79.7	n.s.
Raw Score Computation-Total	75.7	81.8	83.9	82.6	78.4	n.s.
Conversion Table-Verbal	83.3	83.8	89.4	86.3	87.0	n.s.
Conversion Table-Quant.	86.1	85.2	89.4	87.0	85.6	n.s.
Conversion Table-Total	83.3	86.1	86.7	87.8	86.3	n.s.
Mini-Test	91.9	91.0	92.0	90.0	87.0	n.s.

Note: Percent is based on number of respondents reported in Table 1.

Table 8

Usage of Various GMAT-TDS Materials, by
Type of Undergraduate Institution

<u>Material</u>	<u>Type of Respondent Undergraduate Institution</u>			<u>χ^2</u>
	<u>Public</u>	<u>Private</u>	<u>Private-Church</u>	
Answer Key	91.3%	97.1%	95.8%	p<.05
Raw Score Computation-Verbal	81.6	85.7	88.9	n.s.
Raw Score Computation-Quant.	81.0	86.8	91.7	p<.05
Raw Score Computation-Total	79.0	81.5	88.9	n.s.
Conversion Table-Verbal	85.6	85.1	90.0	n.s.
Conversion Table-Quant.	85.3	85.7	91.4	n.s.
Conversion Table-Total	85.5	85.0	91.4	n.s.
Mini-Test	89.7	89.1	94.4	n.s.

Note: Percent is based upon number of respondents reported in Table 1.

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Table 9
Usage of Various GMAT-TDS Materials, by
Type of Graduate Institution to
which Respondent Reported Score

<u>Material</u>	<u>Type of Graduate Management School</u>		χ^2
	<u>Highly Selective</u>	<u>Other</u>	
Answer Key	94.9%	93.5%	n.s.
Raw Score Computation-Verbal	90.5	82.0	$p < .05$
Raw Score Computation-Quant.	90.5	82.6	$p < .05$
Raw Score Computation-Total	89.7	78.8	$p < .02$
Conversion Table-Verbal	93.9	84.3	$p < .02$
Conversion Table-Quant.	94.8	84.4	$p < .01$
Conversion Table-Total	84.0	94.8	$p < .01$
Mini-Test	92.3	89.6	n.s.

Note: Percent is based upon number of respondents reported in Table 1.

TABLE 10

Usage of Various GMAT-TDS Materials, by
Respondent's Geographical Region

<u>Material</u>	<u>Geographical Region</u>											<u>χ^2</u>
	<u>New York</u>	<u>New England</u>	<u>Middle Atlantic</u>	<u>South Atlantic</u>	<u>East N. Central</u>	<u>East S. Central</u>	<u>West N. Central</u>	<u>West S. Central</u>	<u>Mountain</u>	<u>Pacific</u>	<u>Foreign</u>	
Answer Key	84.8%	97.9%	90.9%	96.6%	95.8%	91.7%	83.3%	92.0%	95.0%	94.2%	97.1%	p<.10
Raw Score Computation-Verbal	77.6	89.6	81.5	77.6	81.9	75.0	72.2	88.0	85.0	82.5	94.2	p<.10
Raw Score Computation-Quant.	77.6	91.7	81.5	75.9	81.9	75.0	77.8	84.0	85.0	84.5	95.1	p<.05
Raw Score Computation-Total	73.1	87.5	77.8	79.7	75.5	75.0	72.2	88.0	85.0	79.6	92.1	p<.10
Conversion Table-Verbal	78.8	87.5	86.5	87.9	84.9	75.0	72.2	88.0	78.9	85.0	96.2	p<.10
Conversion Table-Quant.	77.3	91.7	84.6	86.2	85.1	75.0	77.8	88.0	78.9	86.4	96.2	p<.10
Conversion Table-Total	78.1	87.2	84.6	88.1	82.8	75.0	77.8	92.0	84.2	86.4	95.1	n.s.
Mini-Test	92.5	91.7	92.6	88.1	89.4	83.3	94.4	100.0	75.0	86.9	92.3	n.s.

Note: Percent is based on number of respondents reported in Table 1.

Table 11

Usage of Various GMAT-TDS Materials, by
GMAT Total Score of Respondent

<u>Material</u>	<u>GMAT Self Reported Total Score</u>						<u>χ^2</u>
	<u>700-800</u>	<u>600-699</u>	<u>500-599</u>	<u>400-499</u>	<u>300-399</u>	<u>200-299</u>	
Answer Key	81.8%	96.8%	96.3%	94.3%	89.3%	75.3%	p<.001
Raw Score Computation-Verbal	72.7	91.2	84.7	85.8	73.7	60.0	p<.01
Raw Score Computation-Quant.	77.3	90.4	86.0	84.4	77.6	60.0	p<.02
Raw Score Computation-Total	72.7	88.9	83.1	81.4	73.7	53.3	p<.01
Conversion Table-Verbal	86.4	94.4	86.8	87.2	72.0	73.3	p<.001
Conversion Table-Quant.	90.9	93.6	87.7	85.8	75.0	73.3	p<.01
Conversion Table-Total	86.4	94.4	88.6	84.2	74.7	71.4	p<.01
Mini-Test	90.9	84.9	91.5	91.4	93.2	88.2	n.s.

Note: Percent is based upon number of respondents reported in Table 1.

Table 12

Names and Definitions of Variables Used In
Multiple Regression Analyses Reported In
Tables 13, 16 and 19

<u>Variable</u>	<u>Definitions</u>
Female	Sex of Respondent (1=female, 0=male)
Asian	Asian ethnic background (1=Asian or Oriental, 0=Other minority or Caucasian)
Other minority	Non-Asian minority (1=American Indian, black, Hispanic, or unspecified other; 0=Asian or Caucasian)
College size	Size of undergraduate institution (1=fewer than 1,000; 2=1,000-4,999; 3=5,000-9,999; 4=10,000-19,999; 5=20,000 or more)
Private college	Indicator of type of undergraduate Institution (1=private-no church affiliation; 0=Public or private with church affiliation)
Private college with church affiliation	Indicator of type of undergraduate Institution (1=private with church affiliation; 0=public or private-no church affiliation)
Graduate school	Indicator of aspiration to certain selective graduate schools of management (1=Harvard, Stanford or University of Pennsylvania; 0=Other)
Non-U.S. resident	Residence of respondent (1=Non-U.S. resident 0=U.S. resident)
GMAT total score	GMAT self reported score, computed as the midpoint for each categorical score range (1=750, 2=650, 3=550, 4=450, 5=350, 6=250)
Attitude toward disclosure	Attitudes towards test disclosure (scale of 8-24; 24=favoring test disclosure)
Usage	Use of the GMAT test disclosure service materials (scale of 8-16; 16=high usage)

Table 12 (Cont'd)

Names and Definitions of Variables Used In
Multiple Regression Analyses Reported In
Tables 13, 16 and 19

<u>Variable</u>	<u>Definitions</u>
Satisfaction	Satisfaction with GMAT test disclosure service materials (scale of 2-10; 10= highly satisfied)
Clarity	Clarity of GMAT test disclosure service materials instructions (scale of 3-15; 15=very clear)

Table 13
Some Determinants of GMAT-TDS Usage

<u>Independent Variables</u>	<u>Dependent Variable is Usage</u>	
Female	-.0357 (0.817)	-.0297 (0.676)
Asian	-.0238 (0.539)	-.0164 (0.367)
Other minority	-.0750* (1.697)	-.0541 (1.127)
College Size	.0375 (0.736)	.0330 (0.647)
Private college	.0429 (0.826)	.0319 (0.604)
Private college with church affiliation	.0772 (1.595)	.0774 (1.599)
Graduate school	.0795* (1.815)	.0673 (1.492)
Non-U.S. resident	.1627** (3.529)	.1561** (3.359)
GMAT total score		.0550 (1.118)
R ²	.0419 .0276	.0441 .0280
N	544	544

NOTE: This table shows the estimated standardized regression coefficients with their t-statistics in parentheses underneath.

* p < .05

** p < .01

Table 14
Satisfaction of Respondents with
GMAT-TDS Materials and
Score Information

<u>Satisfaction</u>	<u>Respondents</u>	
	<u>N</u>	<u>%</u>
<u>GMAT-TDS Materials</u>		
Very Satisfied	237	39.0
Satisfied	301	49.6
Neither Satisfied nor Dissatisfied	53	8.7
Dissatisfied	14	2.3
Very Dissatisfied	2	0.3
<u>Score Information</u>		
Very Satisfied	190	31.5
Satisfied	327	54.2
Neither Satisfied nor Dissatisfied	66	10.9
Dissatisfied	17	2.8
Very Dissatisfied	3	0.5

Table 15

Mean and Standard Deviation of Satisfaction With All GMAT-TDS Materials and GMAT-TDS Score Information Materials (1=very satisfied), by Selected Respondent Characteristics

<u>Characteristics</u>	<u>Satisfaction with all Materials</u>		<u>Satisfaction with Score Information</u>	
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>
<u>Sex</u>				
Male	1.79	0.72	1.86	0.74
Female	1.68	0.77	1.88	0.78
<u>Ethnicity</u>				
American Indian	2.00	0.0	2.00	0.0
Black/Negro/Afro-American	2.00	1.13	2.27	1.03
Caucasian/White	1.67	0.69	1.81	0.73
Hispanic	2.00	0.67	1.80	0.79
Oriental/Asian	1.94	0.71	1.96	0.75
Other	2.16	0.90	2.19	0.83
<u>Size of Undergraduate Institution</u>				
Fewer than 1,000	1.86	0.86	1.94	0.71
1,000 - 4,999	1.78	0.83	1.88	0.82
5,000 - 9,999	1.68	0.57	1.77	0.65
10,000 - 19,999	1.68	0.74	1.82	0.78
20,000 or more	1.77	0.69	1.93	0.73
<u>Type of Undergraduate Institution</u>				
Public	1.72	0.66	1.87	0.71
Private - No church affiliation	1.77	0.80	1.87	0.86
Private - Church affiliation	1.74	0.86	1.74	0.67
<u>Graduate Institution Applied to</u>				
Certain Selective	1.77	0.73	1.90	0.75
Other	1.68	0.74	1.74	0.76
<u>Regional Residence</u>				
New York State	1.79	0.79	1.99	0.76
New England	1.77	0.89	1.67	0.75
Middle Atlantic	1.87	0.92	2.05	0.89
South Atlantic	1.61	0.59	1.74	0.64
East North Central	1.77	0.70	1.84	0.76
East South Central	1.58	0.67	1.73	0.65

Table 15 (Cont'd)

Mean and Standard Deviation of Satisfaction With All GMAT-TDS Materials and GMAT-TDS Score Information Materials (1=very satisfied), by Selected Respondent Characteristics

<u>Characteristics</u>	<u>Satisfaction with all Materials</u>		<u>Satisfaction with Score Information</u>	
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>
<u>Regional Residence (continued)</u>				
West North Central	1.72	0.83	2.06	0.80
West South Central	1.88	0.73	2.04	0.89
Mountain	1.65	0.67	1.75	0.72
Pacific	1.72	0.71	1.90	0.78
Outside U.S.	1.77	0.64	1.77	0.60
<u>GMAT Total Score</u>				
700-800	1.50	0.51	1.62	0.59
600-699	1.71	0.69	1.79	0.74
500-599	1.75	0.69	1.87	0.71
400-499	1.65	0.62	1.75	0.66
300-399	2.05	0.96	2.15	0.85
200-299	2.12	1.05	2.47	1.12

Table 16

Some Determinates of Respondent Satisfaction
with GMAT-TDS Materials

<u>Independent Variables</u>	<u>Dependent variable is satisfaction</u>		
Female	.0344 (0.806)	.0453 (1.056)	.0342 (0.776)
Asian	.1144** (2.641)	-.1003* (2.291)	-.1011* (2.242)
Other minority	.1781** (4.103)	-.1424** (3.023)	-.0895* (1.871)
College size	-.0009 (0.000)	-.0102 (0.205)	.0014 (.032)
Private college	-.0298 (0.586)	-.0482 (0.934)	-.0382 (.725)
Private college with church affiliation	.0292 (0.615)	.0278 (0.587)	.0003 (.000)
Graduate school	.0875 (2.043)	.0658 (1.491)	.0172 (.381)
Non-U.S. resident	.0729 (1.632)	.0613 (1.363)	.0413 (.885)
GMAT total score		.0943* (1.944)	.0487 (.985)
Clarity			-.3226** (7.422)
R ²	.0582 .0427	.0582 .0427	.1424 .1244
N	558	558	488

NOTE: This table shows the estimated standardized regression coefficients with their t-statistics in parentheses underneath.

* p < .05

** p < .01

Table 17

Percent Respondents Agreeing With Each
Of Eight Statements Regarding Test Disclosure

Statement	Respondents Agreeing	
	<u>N</u>	<u>%</u>
Test-takers should receive detailed information about the test and how their scores are computed.	539	88.7%
Test disclosure will make the testing organizations more accountable to the public	445	74.8
Test disclosure will cause a gradual inflation of test scores.	129	21.4
Test disclosure will enable test-takers to learn from reviewing the questions and comparing their answers with the correct answers.	534	87.8
Test disclosure will improve test quality.	260	43.0
Test disclosure will reduce test validity and reliability.	42	7.0
The costs of providing disclosure services and of developing new tests will place an undue burden on test takers.	74	12.3
Test disclosure will lead to a proliferation of coaching or cram schools.	97	16.2

Note: Percent is based upon the number of respondents answering the item; omits are not included.

Table 18

Mean and Standard Deviation of Attitude Toward Test Disclosure by Selected Respondent Characteristics

<u>Characteristics</u>	<u>Attitude Toward Test Disclosure</u>	
	<u>Mean</u>	<u>S.D.</u>
<u>Sex</u>		
Male	19.96	2.70
Female	20.22	2.35
<u>Ethnicity</u>		
American Indian	21.50	2.38
Black/Negro/Afro-American	20.14	2.45
Caucasian/White	20.07	2.65
Hispanic	20.22	2.54
Oriental/Asian	19.90	2.28
Other	19.50	2.60
<u>Size Of Undergraduate Institution</u>		
Fewer than 1,000	20.32	2.25
1,000 - 4,999	19.86	2.67
5,000 - 9,999	19.95	2.67
10,000 - 19,999	19.91	2.78
20,000 or more	20.35	2.29
<u>Type of Undergraduate Institution</u>		
Public	20.18	2.48
Private - No church affiliation	19.71	2.73
Private - Church affiliation	20.13	2.66
<u>Graduate Institution Applied to</u>		
Certain Selective	20.12	2.50
Other	19.68	2.91
<u>Regional Residence</u>		
New York State	20.39	2.22
New England	19.65	2.66
Middle Atlantic	20.16	2.52
South Atlantic	19.56	2.51
East North Central	20.46	2.39
East South Central	20.36	1.86

Table 18 (Cont'd)

Mean and Standard Deviation of Attitude Toward Test Disclosure by Selected Respondent Characteristics

<u>Characteristics</u>	<u>Attitude Toward Test Disclosure</u>	
	<u>Mean</u>	<u>S.D.</u>
Regional Residence (continued)		
West North Central	19.83	2.77
West South Central	19.28	3.29
Mountain	20.40	2.19
Pacific	20.59	2.51
Outside U.S.	19.40	2.86
GMAT Total Score		
700-800	20.0	2.65
600-699	19.71	3.07
500-599	19.98	2.65
400-499	20.33	2.34
300-399	20.12	2.01
200-299	20.31	2.02

Table 19

Some Determinants of Attitudes Toward Test Disclosure

<u>Independent Variables</u>	<u>Dependent Variable is Attitude Toward Disclosure</u>		
Female	.0338 (0.773)	.0290 (0.659)	.0279 (0.628)
Asian	.0003 (0.000)	-.0056 (0.126)	-.0071 (0.155)
Other minority	-.0159 (0.358)	-.0308 (0.643)	-.0331 (0.679)
College size	.0077 (0.152)	.0113 (0.221)	.0101 (0.195)
Private college	-.0917* (1.770)	-.0840 (1.597)	-.0855 (1.605)
Private college with church affiliation	-.0014 (0.032)	-.0013 (0.032)	-.0002 (0.000)
Graduate school	-.0437 (1.000)	-.0345 (0.765)	-.0344 (0.754)
Non-U.S. resident	-.1059* (2.297)	-.1008* (2.169)	-.0996* (2.119)
GMAT total score		-.0410 (0.836)	-.0349 (0.701)
Satisfaction			.0235 (0.531)
R ²	.0252 .0108	.0264 .0103	.0264 .0081
N	551	551	542

NOTE: This table shows the estimated standardized regression coefficients with their t-statistics in parentheses underneath.

* p<.05

** p<.01

Appendix A

TEST CODE 13

**Graduate Management
Admission Test**



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Princeton, N.J. 08541



Scoring and Interpretation Information Sheet

■ Questions Not Scored

The Bulletin of Information notes that test forms may contain a number of experimental questions that are not counted toward the candidate's reported scores. These questions and their associated answers are exempted from disclosure under recently enacted legislation. The accompanying self-scoring information sheet indicates which sections of the test you took counted toward your Verbal, Quantitative, and Total scores and which section was not included in the scoring. You should cross out the unscored section on your answer sheet. The answers to those questions are not on the enclosed key and the questions have been deleted from the mini-test book.

■ Calculating your Verbal, Quantitative, and Total Raw Scores (Corrected for Guessing)

1. The enclosed self-scoring information sheet indicates the two digit test code for the test you took. Check that against the test code designation on the answer key and on your answer sheet (Side 1-Item F—Test Code—first two digits). If they do not match, contact ETS. If they do match, continue as follows:
2. Score your answer sheet using the enclosed scoring key. Use marks to indicate whether each answer was correct or incorrect. Cross out any questions you left out, or for which you marked more than one answer, as they are not counted in the scoring.
3. Using the sections (noted on your self-scoring information sheet) which counted toward your *Verbal* score, count the combined total number of items you answered correctly in all of those sections.
4. Using the same sections, count the combined total number of items you answered incorrectly in all of those sections.
5. Take the number answered incorrectly from step 4 and divide it by 4 (this is the correction for guessing).
6. Subtract the number obtained in Step 5 from the number answered correctly in Step 3.
7. Round the resulting number to the nearest whole number by adding 5 and then dropping all digits to the right of the decimal point. The result is your *Verbal* raw score corrected for guessing, which appears on the self-scoring information sheet.

Following are some Examples for a score based on 40 items (Total of number of omits, number correct, and number wrong in Steps 2-4):

	Example #1	Example #2	Example #3
Step 2 —Number omitted or multiple marked	8	0	5
Step 3 —Number Correct	20	25	30
Step 4 —Number Wrong	12	15	5
Step 5 —Correction for guessing—number wrong in Step 4 divided by 4	3	3.75	1.25
Step 6 —Number in Step 3 minus Number in Step 5	17	21.25	28.75
Step 7 —Rounding: Add 5 to the number in Step 6	17.5	21.75	29.25
Final raw score corrected for guessing —drop all digits to the right of the decimal in Step 7	17	21	29

8. Using the sections which counted toward your *Quantitative* score (see the self-scoring information sheet), perform steps 3-7. The result is your *Quantitative* raw score corrected for guessing, which should match the one on the self-scoring information sheet.
9. Using the sections which counted toward your *Total* score (see the self-scoring information sheet), perform steps 3-7. The result is your *Total* raw score corrected for guessing, which should match the one on the self-scoring information sheet. It is possible that the sum of your *Verbal* and *Quantitative* raw scores may be one point higher or lower than the *Total* raw score due to the rounding procedures for each score.
10. If there are any discrepancies between your results and those on the self-scoring information sheet, double-check your calculations and check your answer sheet for incomplete erasures or poor (light or partial) marking.

■ Conversion of Raw Scores to Scaled Scores

1. Using the three raw scores corrected for guessing, look up each one in the appropriate score conversion table. The scaled scores beside your raw scores corrected for guessing should match the scaled scores on your score report. If there is a discrepancy, see the "Hand-Scoring Service" information on the self-scoring information sheets for directions on how to request that ETS perform a hand scoring.

■ Caveats Regarding Raw Score Interpretation

1. The GMAT is designed to yield only the reported Verbal, Quantitative, and Total scaled scores. One should not calculate raw scores for individual test sections and infer specific strengths or weaknesses from a comparison of the raw score results by section. There are two reasons for this. First, different sections have different numbers of questions and, even if the number were the same or if percentages were used to make the numbers comparable, the sections might not be equally difficult. For illustrative purposes only, suppose that one section had 20 items and another had 30. Furthermore, suppose you got a corrected raw score of 10 on the first and 10 on the second. It would be inappropriate to conclude that you had equal ability in the two sections because the raw scores were equal, as you really got 50% of the first section and only 40% of the second. It could be equally inappropriate, however, to conclude from the percentages that you were better on the first section than on the second. Suppose the first section was relatively easy for most candidates (say, an average raw score percentage across candidates of 55%) and the second was relatively hard (an average raw score percentage across candidates of 35%). Now you might conclude that you were worse than average on the first section and better than average on the second.

Differences in difficulty level between editions are accounted for in the procedure for converting the Verbal, Quantitative, and Total raw scores to scaled scores. Since the raw scores for individual sections are not converted to produce scaled scores by section, differences in difficulty levels of the individual sections are not taken into account.

Second, raw scores by section are not converted to scaled scores by section because the GMAT is not designed to reliably measure specific strengths and weaknesses beyond the general verbal and quantitative abilities for which separate scaled scores are

reported. Reliability is a result, in part, of the number of questions on the test—the more questions, the higher the reliability. The relatively few questions in each section, taken alone, are not sufficient to produce a reliable result for each section (see "Accuracy of Scores" in the *GMAT Candidate Score Interpretation Guide*). Only the reported Verbal, Quantitative, and Total scaled scores (which increase the number of questions counted by combining questions across sections) have sufficient reliability to permit their use in counseling and predicting graduate school performance.

2. It is possible, if you repeat the test, that your second raw scores corrected for guessing could be higher than on the first test, but your scaled scores could be lower and vice versa. This is a result of the slight differences in difficulty level between editions of the test, which are taken into account when raw scores are converted to the GMAT scaled scores. That is, for a given scaled score, a more difficult edition requires a lower corrected raw score and an easier edition requires a higher corrected raw score. (See "What Do My GMAT Scores Mean" in the *GMAT Candidate Score Interpretation Guide* and "Your GMAT Scores" in the *GMAT Bulletin of Information Supplement*).

■ Test Content

If you have questions about specific test items, write to:

GMAT
Educational Testing Service
Box 966-D
Princeton, NJ 08541
Attention: Test Development

Please include the test code (see the self-scoring information sheet) and the number(s) of the item(s) involved (from your answer sheet) along with the specifics of your inquiry or comment.

VERBAL SCORE GMAT FORM 13											
CRS-CORRECTED RAW SCORE				SS-SCALED SCORE							
CRS	SS	CRS	SS	CRS	SS	CRS	SS	CRS	SS	CRS	SS
89	55	69	43	49	31	29	19	9	7		
88	55	68	43	48	30	28	18	8	6		
87	54	67	42	47	30	27	18	7	5		
86	54	66	41	46	29	26	17	6	5		
85	53	65	41	45	28	25	16	5	4		
84	52	64	40	44	28	24	16	4	3		
83	52	63	39	43	27	23	15	3	3		
82	51	62	39	42	27	22	14	2	2		
81	50	61	38	41	26	21	14	1	2		
80	50	60	38	40	25	20	13	0	1		
79	49	59	37	39	25	19	13				
78	49	58	36	38	24	18	12				
77	48	57	36	37	24	17	11				
76	47	56	35	36	23	16	11				
75	47	55	35	35	22	15	10				
74	46	54	34	34	22	14	10				
73	46	53	33	33	21	13	9				
72	45	52	33	32	21	12	8				
71	44	51	32	31	20	11	8				
70	44	50	32	30	19	10	7				

CONVERSION TABLES

TOTAL SCORE GMAT FORM 13											
CRS-CORRECTED RAW SCORE				SS-SCALED SCORE							
CRS	SS	CRS	SS	CRS	SS	CRS	SS	CRS	SS	CRS	SS
149	800	109	684	69	497	29	310				
148	800	108	679	68	493	28	306				
147	800	107	675	67	488	27	301				
146	800	106	670	66	483	26	296				
145	800	105	665	65	479	25	292				
144	800	104	661	64	474	24	287				
143	800	103	656	63	469	23	282				
142	800	102	651	62	465	22	278				
141	800	101	647	61	460	21	273				
140	800	100	642	60	455	20	268				
139	800	99	637	59	451	19	264				
138	800	98	633	58	446	18	259				
137	800	97	628	57	441	17	254				
136	800	96	623	56	436	16	250				
135	800	95	619	55	432	15	245				
134	800	94	614	54	427	14	240				
133	796	93	609	53	422	13	236				
132	791	92	605	52	418	12	231				
131	787	91	600	51	413	11	226				
130	782	90	595	50	408	10	222				
129	777	89	591	49	404	9	217				
128	773	88	586	48	399	8	212				
127	768	87	581	47	394	7	208				
126	763	86	577	46	390	6	203				
125	759	85	572	45	385	5	200				
124	754	84	567	44	380	4	200				
123	749	83	563	43	376	3	200				
122	745	82	558	42	371	2	200				
121	740	81	553	41	366	1	200				
120	735	80	549	40	362	0	200				
119	731	79	544	39	357						
118	726	78	539	38	352						
117	721	77	535	37	348						
116	717	76	530	36	343						
115	712	75	525	35	338						
114	707	74	521	34	334						
113	703	73	516	33	329						
112	698	72	511	32	324						
111	693	71	507	31	320						
110	689	70	502	30	315						

QUANTITATIVE SCORE GMAT FORM 13											
CRS-CORRECTED RAW SCORE				SS-SCALED SCORE							
CRS	SS	CRS	SS	CRS	SS	CRS	SS	CRS	SS	CRS	SS
60	58	45	46	30	35	15	23	0	11		
59	58	44	46	29	34	14	22				
58	57	43	45	28	33	13	21				
57	56	42	44	27	32	12	20				
56	55	41	43	26	31	11	19				
55	54	40	42	25	31	10	19				
54	54	39	42	24	30	9	18				
53	53	38	41	23	29	8	17				
52	52	37	40	22	28	7	16				
51	51	36	39	21	27	6	15				
50	50	35	39	20	27	5	15				
49	50	34	38	19	26	4	14				
48	49	33	37	18	25	3	13				
47	48	32	36	17	24	2	12				
46	47	31	35	16	23	1	11				

(See reverse side for answer key)

Graduate Management Admission Test
Answer Key

Test Code 13

<u>Sec. I</u>	<u>Sec. II</u>	<u>Sec. III</u>	<u>Sec. IV</u>	<u>Sec. V</u>	<u>Sec. VI</u>		
1. B	26. E	51. C	56. D	76. C	101. A	106. B	131. B
2. C	27. D	52. B	57. B	77. C	102. B	107. E	132. A
3. D	28. A	53. C	58. A	78. D	103. D	108. C	133. D
4. A	29. D	54. B	59. C	79. B	104. A	109. A	134. C
5. E	30. E	55. C	60. D	80. B	105. A	110. D	135. A
6. A	31. A		61. C	81. D		111. E	136. E
7. B	32. B		62. E	82. E		112. B	137. *
8. A	33. D		63. B	83. E		113. C	138. D
9. C	34. D		64. C	84. C		114. C	139. C
10. B	35. A		65. A	85. E		115. A	140. B
11. B	36. C		66. D	86. D		116. E	141. D
12. E	37. D		67. C	87. A		117. B	142. E
13. A	38. A		68. C	88. C		118. D	143. D
14. C	39. E		69. E	89. A		119. A	144. C
15. D	40. E		70. D	90. E		120. C	145. E
16. E	41. B		71. C	91. B		121. A	146. A
17. B	42. D		72. C	92. E		122. C	147. A
18. C	43. B		73. A	93. A		123. A	148. B
19. B	44. D		74. E	94. B		124. E	149. D
20. D	45. E		75. D	95. D		125. B	150. A
21. A	46. D			96. B		126. E	
22. E	47. B			97. C		127. D	
23. C	48. A			98. C		128. C	
24. A	49. C			99. E		129. E	
25. B	50. E			100. D		130. D	

*Not scored

51.

(See Reverse Side for Score Conversion Tables)

Appendix B

GMAT Test Disclosure Questionnaire

You have just received the GMAT Test Disclosure Service materials that you ordered. After you review your materials, while they are still fresh in your mind, please complete this questionnaire. Please answer the questions frankly, as we need to know your reactions to this new service in order to make the service even more useful to candidates.

I. About the package

1. This package should contain all of the following materials. Please check the contents of this package, and then circle each item that you have received.
 - 1 A letter explaining this questionnaire.
 - 2 This questionnaire about the GMAT Test Disclosure Service.
 - 3 A return envelope.
 - 4 A copy of your GMAT answer sheet.
 - 5 A mini-test book containing the questions used in scoring your test.
 - 6 An answer key and conversion table.
 - 7 A GMAT scoring and interpretation information sheet.
 - 8 A self-scoring information sheet and hand scoring order form.

2. Was anything missing? *Circle one number.*
 - 1.3 1 Yes.
 - 98.7 2 No.

3. In general, was the information contained in the materials about what you expected? *Circle one number.*
 - 25.3 1 The materials contained more information than I expected.
 - 65.9 2 The materials contained about the amount of information that I expected.
 - 8.7 3 The materials contained less information than I expected.

II. About the GMAT Test Disclosure Service in general

4. Why did you order the GMAT Test Disclosure Service? Please indicate the most important reason for your order.

5. In general, how satisfied were you with the disclosure materials?
Circle one number.

- 39.0 1 Very satisfied.
- 49.6 2 Satisfied.
- 8.7 3 Neither satisfied nor dissatisfied.
- 2.3 4 Dissatisfied.
- 0.3 5 Very dissatisfied.

6. If a friend asked you whether he or she should order the GMAT Test Disclosure Service, what would you recommend? *Circle one number.*

- 93.1 1 I would recommend ordering the GMAT Test Disclosure Service.
- 6.9 2 I would not recommend ordering the GMAT Test Disclosure Service.

7. The GMAT Test Disclosure Service fee was \$5.95. When you consider what you received, was this fee: *Circle one number.*

- 37.8 1 Too high.
- 61.7 2 About right.
- 0.5 3 Not high enough.

8. If the GMAT Test Disclosure Service fee had been higher (i.e. \$10) because of higher costs for labor and/or materials, would you still have ordered it? *Circle one number.*

- 13.2 1 Yes, definitely.
- 33.6 2 Probably yes.
- 14.5 3 Don't know.
- 29.5 4 Probably no.
- 9.2 5 No, definitely.

III. About scoring your GMAT

9. How did your GMAT total scaled score compare with what you expected it would be? *Circle one number.*

- 31.1 1 My score was about what I expected it would be.
- 54.2 2 My score was lower than I expected it would be.
- 14.6 3 My score was higher than I expected it would be.

10. Do you intend to take the GMAT again? *Circle one number.*

- 29.2 1 Yes.
- 22.6 2 Don't know.
- 48.2 3 No.

GMAT Test Disclosure Questionnaire, page 3

11. Did you score your answer sheet, marking correct and incorrect answers, by using the enclosed scoring key and instructions for scoring?

Circle one number.

93.7 1 Yes.
6.3 2 No.

12. How clear were the instructions for using the answer key.

Circle one number.

47.9 1 Very clear.
41.2 2 Clear.
3.8 3 Neither clear nor unclear.
2.6 4 Unclear.
0.3 5 Very unclear.
4.1 6 I didn't read the instructions for using the answer key.

13. Did you compute your raw scores (corrected for guessing)? Please indicate your answer for each section of the GMAT. Circle one number for each item.

Verbal

83.6 1 Yes.
16.4 2 No.

Quantitative

84.1 1 Yes.
15.9 2 No.

Total

80.9 1 Yes.
19.1 2 No.

14. How clear were the instructions for computing your raw scores (corrected for guessing)? Circle one number.

40.9 1 Very clear.
40.4 2 Clear.
6.9 3 Neither clear nor unclear.
2.8 4 Unclear.
0.7 5 Very unclear.
8.4 6 I did not read the instructions for computing raw scores corrected for guessing.

GMAT Test Disclosure Questionnaire, page 4

15. Did you look up the conversion of the raw scores (corrected for guessing) to the GMAT scaled scores using the conversion table? Please indicate your answer for each section of the GMAT. *Circle one number for each item.*

Verbal
86.2 1 Yes.
13.8 2 No.

Quantitative
86.4 1 Yes.
13.6 2 No.

Total
86.1 1 Yes.
13.9 2 No.

16. How clear were the instructions for determining the conversion of the raw scores (corrected for guessing) to the GMAT scaled score? *Circle one number.*

36.5 1 Very clear.
40.8 2 Clear.
8.2 3 Neither clear nor unclear.
5.5 4 Unclear.
0.7 5 Very unclear.
8.3 6 I did not look up the conversion of the raw scores (corrected for guessing) to the GMAT scaled scores.

17. Were there any differences between the scaled scores you computed and the scaled scores that were reported? Please indicate your answer for each section of the GMAT. *Circle one number for each item.*

Verbal
13.5 1 Yes.
86.5 2 No.

Quantitative
10.4 1 Yes.
89.6 2 No.

Total
17.1 1 Yes.
82.9 2 No.

18. How did the total scaled score that you computed compare with the total scaled score that was reported. *Circle one number.*

17.3 1 The score I computed was higher than the reported score.
2.7 2 The score I computed was lower than the reported score.
80.0 3 There was no difference between the score I computed and the score that was reported.

19. Have you ordered, or do you intend to order, a hand scoring? *Circle one number.*

3.1 1 Yes.
96.9 2 No.

20. In general, how satisfied were you with the score information and materials? *Circle one number.*

31.5 1 Very satisfied.
54.2 2 Satisfied.
10.9 3 Neither satisfied nor dissatisfied.
2.8 4 Dissatisfied.
.0.5 5 Very dissatisfied.

IV. About the mini-test

21. Have you read or reviewed the mini-test? *Circle one number.*

90.2 1 Yes.
9.8 2 No.

22. Did you recognize the questions on the mini-test as coming from the GMAT you took on January 26 or 28? *Circle one number.*

93.3 1 Yes.
6.7 2 No.

23. Did you review, in the mini-test booklet, the questions that you omitted or answered incorrectly? *Circle one number.*

85.1 1 Yes.
14.8 2 No.
0.2 3 I did not omit any questions or answer any questions incorrectly.

24. How do you think your incorrect answers compared with the correct answers? *Circle one number.*

51.9 1 My answers were clearly incorrect.
31.2 2 My answers were as reasonable as the correct answers.
1.4 3 My answers were better than the correct answers.
4.1 4 I don't know which answers were correct.
11.4 5 I didn't look at the questions in the mini-test booklet.

25. Do you think reviewing a mini-test would help someone prepare for the GMAT? (Assume that no questions on the mini-test would appear on the GMAT.) *Circle one number.*

88.0 1 Yes.
9.4 2 Don't know.
2.7 3 No.

26. After reviewing the mini-test, do you think there were questions on the GMAT that were unfair? *Circle one number.*

28.8 1 Yes.
71.2 2 No.

If you answered "Yes," please indicate the number of each question on the mini-test that you think was unfair.

24.8 responded here

27. Do you think the GMAT contains questions that are unfair to people from different cultural backgrounds? *Circle one number.*

13.5 1 Yes. Which questions? _____
41.2 2 Don't know.
45.3 3 No.

28. Do you think the GMAT contains questions that are unfair to people from different racial groups? *Circle one number.*

5.5 1 Yes. Which questions? _____
41.6 2 Don't know.
52.9 3 No.

29. Do you think the GMAT contains questions that are unfair to women? *Circle one number.*

1.2 1 Yes. Which questions? _____
26.3 2 Don't know.
72.4 3 No.

V. About test disclosure in general

Please indicate whether you agree or disagree with each of the following statements about test disclosure. *Circle one number for each item.*

	<u>Agree</u>	<u>Uncertain</u>	<u>Disagree</u>
30. Test-takers should receive detailed information about the test and how their scores are computed.	88.7	7.4	3.9
31. Test disclosure will make the testing organizations more accountable to the public.	74.8	18.8	6.4
32. Test disclosure will cause a gradual inflation of test scores.	21.4	44.2	34.4

GMAT Test Disclosure Questionnaire, page 7

Circle one number for each item.

	<u>Agree</u>	<u>Uncertain</u>	<u>Disagree</u>
33. Test disclosure will enable test-takers to learn from reviewing the questions and comparing their answers with the correct answers.	87.8	8.1	4.1
34. Test disclosure will improve test quality.	43.0	47.3	9.8
35. Test disclosure will reduce test validity and reliability.	7.0	29.2	63.8
36. The costs of providing disclosure services and of developing new tests will place an undue burden on test takers.	12.3	41.0	46.7
37. Test disclosure will lead to a proliferation of coaching or cram schools.	16.2	38.6	45.2

VI. The following are questions to be used when we summarize the results

38. Your sex: Circle one number.

- 66.2 1 Male.
33.8 2 Female.

39. Your ethnic background: Circle one number.

- 0.7 1 American Indian
2.5 2 Black/Negro, Afro-American
77.9 3 Caucasian/White
1.7 4 Mexican American/Chicano/Puerto Rican
12.0 5 Oriental/Asian
5.2 6 Other (please specify)

40. What is your best estimate of the total student enrollment at the school from which you received or will receive your bachelor's degree? Circle one number.

- 6.3 1 Fewer than 1,000
26.6 2 1,00-4,999
19.3 3 5,000-9,999
22.7 4 10,000-19,999
25.1 5 20,000 or more

41. Which of the following best describes your undergraduate institution?
Circle one number.

- 58.2 1 Public
- 29.7 2 Private-no church affiliation.
- 12.1 3 Private-church affiliation.

42. To which Graduate Schools of Management did you have your GMAT test scores sent? (List up to three in order of preference.) Use the four digit codes from your score report form.

1 _____
2 _____
3 _____

43. In which region of the United States do you live? *Circle one number.*

- 11.2 1 New York State
- 7.9 2 New England (ME, NH, VT, MA, RI, CT)
- 9.0 3 Middle Atlantic (NJ, PA)
- 9.7 4 South Atlantic (WV, VA, MD, DE, DC, NC, SC, GA, FA)
- 15.8 5 East North Central (MI, OH, IN, IL, WI)
- 2.0 6 East South Central (KY, TN, MS, AL)
- 3.0 7 West North Central (ND, SD, NE, KS, MN, IA, MO)
- 4.1 8 West South Central (TX, OK, AR, LA)
- 3.3 9 Mountain (MT, ID, WY, NV, UT, CO, AZ, NM)
- 16.9 10 Pacific (WA, OR, CA, AK, HI, and US possessions)
- 17.2 11 I do not live in the United States

44. Please indicate the range in which your reported GMAT total scaled score fell. *Circle one number.*

- 3.7 1 700-800
- 21.1 2 600-699
- 36.0 3 500-599
- 23.7 4 400-499
- 12.7 5 300-399
- 2.8 6 200-299

Thank you for participating in our study.

Please return this questionnaire to:

GMAT Program, PJ 693.68
Educational Testing Service
Attention: K. Finkelstein, T-150
Princeton, New Jersey 08541