

GMAT Psychometrics

Lawrence Rudner, PhD, MBA

Vice President, Research & Development & Chief Psychometrician
Graduate Management Admission Council

GMAT TEST PREP
SUMMIT

GMAT

What should I tell people about:

- the first 10 questions?
- finishing?
- easy questions?

GMAT TEST PREP
SUMMIT

GMAT

My key points

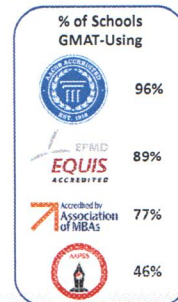
- Be familiar with the test
- Pace yourself
- Finish
- Don't try to out smart the test

GMAT TEST PREP
SUMMIT

GMAT

The GMAT as a Global Resource for Identifying Quality Students

- 4,900 Programs Around the Globe
- Examinees from 186 Countries

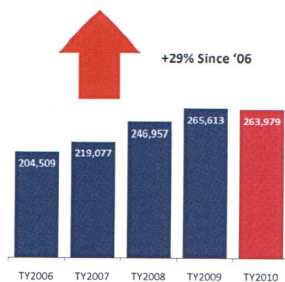
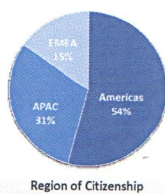


GMAT TEST PREP
SUMMIT

GMAT

The Growing Student Pipeline

264,000
Exams Taken
Worldwide in TY2010



Source: TY2010 GMAT Examinee Data

GMAT TEST PREP
SUMMIT

GMAT

What are examinees looking for?

Graduate School Intentions

Graduate Degree Type	% of examinees
1. MBA	73%
2. Master's of Accountancy	8%
3. EMBA	4%
4. Undecided/Other Degree	4%
5. Doctorate in Business	3%

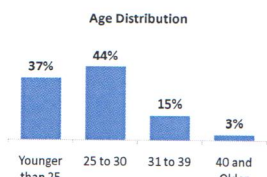
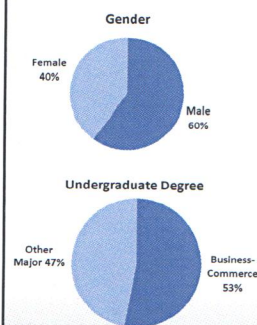
Delivery Type	% of examinees
1. On-Campus	84%
2. Some Combination	8%
3. Undecided	4%
4. Online or Distance	3%

Area of Concentration	% of examinees
1. Finance	19%
2. Accounting	12%
3. Undecided	10%
4. General Management	10%
5. Marketing	9%

GMAT TEST PREP
SUMMIT

GMAT

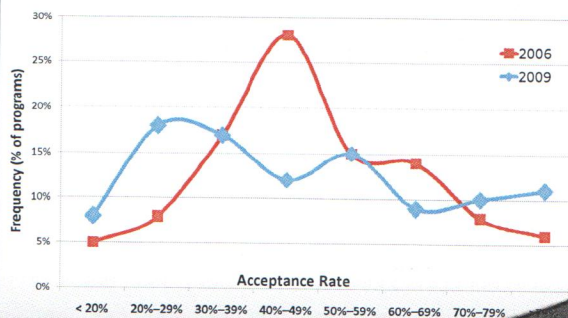
What do examinees look like?



GMAT TEST PREP
SUMMIT

GMAT

Program acceptance rates



GMAT TEST PREP
SUMMIT

GMAT

The screenshot shows the GMAC website with the 'GMAT® Data To Go' link highlighted in a red circle. The website header includes 'THE GRADUATE MANAGEMENT ADMISSION COUNCIL®' and navigation tabs for 'School Services', 'The GMAT®', 'Research & Trends', 'News & Events', and 'About Us'. The 'Research & Trends' tab is active, showing links to 'GMAT® Data', 'GMAT® Geographic Trends', 'Research Report Series', 'Survey Research', 'MBA Research', 'Tools & Services', and 'GMAT® Data To Go'. The 'GMAT® Data To Go' link is circled in red. Below the navigation, there is a section titled 'Introduction | Quick Start | Public | GMAT Using Schools | GMAC Members | Benchmark Reports'. The main content area lists several reports, including 'Alumni Perspectives Survey, September 2010 General Data Report' and 'Alumni Perspectives Survey, April 2010 General Data Report'. The 'How did I do? (GMAT Score Distributions, 2007-2009)' link is also circled in red.

Examinees Retaking the GMAT® Test

GMAT® Retake Study

- Data from 2007 to 2010
- 127,320 candidates in study
 - 68,750 US residents
 - 11,406 Under Rep Pop
- Retake rate in US is about 18%

Average Gains in GMAT® Scores

	<u>US</u>	<u>US URPs</u>
GMAT total	33	27
GMAT Quant	2.4	2.5
GMAT Verbal	2.0	1.3

Conclusions

- Everyone wants lots of practice questions and good explanations
- Those that chose test prep expect great explanations and comprehensive information
- In NA, companies are selected based on reputation, schedule, proximity.
- Perceived cost is the biggest impediment to enrollment

GMAT TEST PREP
SUMMIT

GMAT

My Message to Students

It pays to:

- ✓ prepare
- ✓ start preparing well in advance
- ✓ put in the time

After all, your competition is doing
just that

GMAT TEST PREP
SUMMIT

GMAT

Questions?



GMAT TEST PREP
SUMMIT

GMAT

GMAT Exam Basics

Globally Accessible

- 548 testing centers in 111 countries

Objective, accurate, unbiased

- Most reliable predictor of academic success in graduate business studies

Secure

- Goal: Examinee IS Your Incoming Student

GMAT TEST PREP
SUMMIT

GMAT

Secure Testing Environment

Delivery

- Individual testing stations
- Proctored



Security

- Cannot register on the day of the exam or at testing center
- Must provide valid ID
- Biometrics gathered at testing center
 - Digital photo
 - Signature
 - Palm Vein Recognition



GMAT TEST PREP
SUMMIT

GMAT

Examinee Experience

Scores

- Ability to cancel scores (*before* seeing results)
- Unofficial report available immediately after test
- Official report sent to examinee and schools within 20 days (electronically)

Retesting

- 1 test attempt per month
 - 5 times over 12 month period
- Around 20% take more than once
 - Average score increase: 30 points
- Most schools accept highest score

GMAT TEST PREP
SUMMIT

GMAT

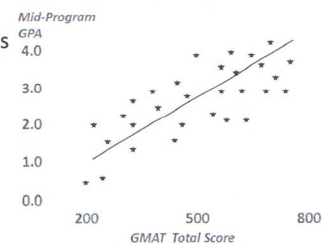
What are we trying to measure?

Conceptual

- Predict academic success in graduate business programs

Practical

- Average grades in the "first half of program"



GMAT TEST PREP
SUMMIT

GMAT

What it Measures

The GMAT exam measures...

Verbal reasoning, quantitative reasoning, and analytical writing skills

The GMAT exam DOES NOT measure...

- Leadership potential
- Knowledge of facts
- Job skills
- Emotional Intelligence
- Undergraduate competency
- Spoken English ability
- Learning Style

GMAT TEST PREP
SUMMIT

GMAT

From Verbal & Quant → Total Score

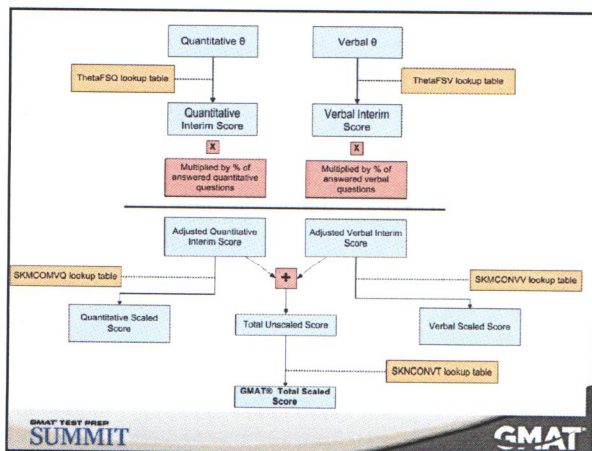
GMAT Total Score

- Reflects combined performance on verbal and quant sections
- Is NOT a simple, linear calculation of Q & V responses
- Does not include AWA

Score Scale
200 to 800
TY2010 Mean Score
544

GMAT TEST PREP
SUMMIT

GMAT



First time QVT = 50, 31, 680

Second time QVT = 49, 35, 690 why not higher T ?

	Quantitative Score		Verbal Score	
	Scale Score	Interim range	Scale Score	Interim range
Test 1	50	60-62	31	42 - 43
Test 2	49	57-59	35	48 - 49

GMAT Total	Interim Sum	Scale Score
Test 1	102-105	670 - 690
Test 2	105-108	690 - 700

GMAT TEST PREP
SUMMIT

GMAT

GMAT Score Reports: What Schools See

Five Years of Testing Results

- Scores and Percentiles for Total, Quant, Verbal, and AWA plus...

Citizenship	Gender	Date of Birth
Telephone #	Undergrad Institution	Undergrad GPA
Date of Graduation	Intended Grad Degree	Highest Level of Education

GMAT TEST PREP
SUMMIT

GMAT

Testing the Test

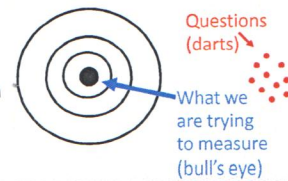
Reliability

Consistency in measurement

10 questions trying to measure something

Validity

Extent to which an exam measures what it's intended to



GMAT TEST PREP
SUMMIT

GMAT



Tool is NOT reliable. ☹️

Tool is NOT valid. ☹️



Tool is reliable. 😊

Tool is NOT valid. ☹️



Tool is reliable. 😊

Tool is valid. 😊

Can have reliability without validity!

GMAT TEST PREP
SUMMIT

GMAT

GMAT Reliability

Reliability = Consistency of Scores

Content	Reliability
Total	.92
Verbal	.90
Quantitative	.89
Writing	.83



1.0 = perfect reliability
0.0 = perfect unreliability

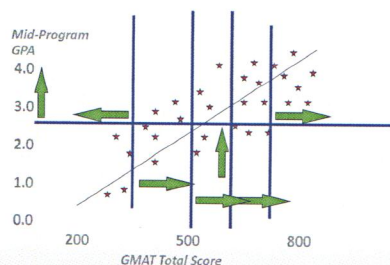
GMAT TEST PREP
SUMMIT

Source: GMAT Test Prep Summit. www.gmat.com

GMAT

Validity

GMAT Validity: Relationship between exam score and success in mid-Program business school courses



GMAT TEST PREP
SUMMIT

GMAT

Validity and the GMAT

"degree to which a variable predict mid-Program grades in GME programs"

Variable

Validity



Multiple correlations with Mid-Program Grades.
0.30 to 0.40 is considered good for admissions testing

Source: GMAT Test Prep Summit, Inc. Validity Study Summary Report for 1997 to 2004.

GMAT TEST PREP
SUMMIT

GMAT

Other results from validity studies

- GMAT scores useful for predicting grades across
 - Gender
 - Citizenship
 - Native language
- Findings from studies of program type and age



GMAT TEST PREP
SUMMIT

GMAT

Test Development Process & Computer Adaptive Testing

GMAT TEST PREP
SUMMIT

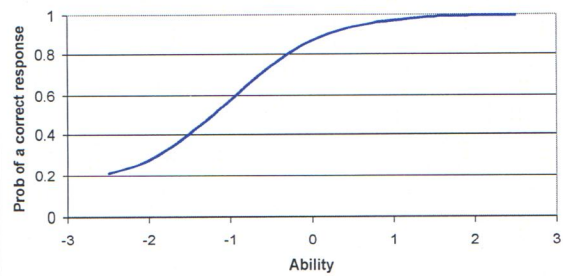
GMAT

Content is paramount

GMAT TEST PREP
SUMMIT

GMAT

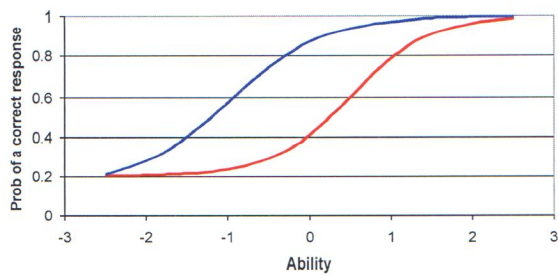
A short computer-adaptive test



GMAT TEST PREP
SUMMIT

GMAT

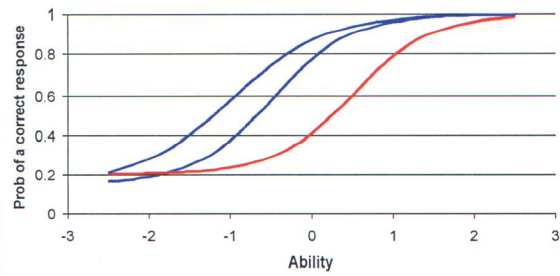
A short computer-adaptive test



GMAT TEST PREP
SUMMIT

GMAT

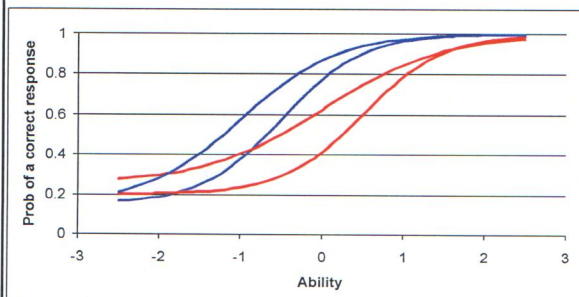
A short computer-adaptive test



GMAT TEST PREP
SUMMIT

GMAT

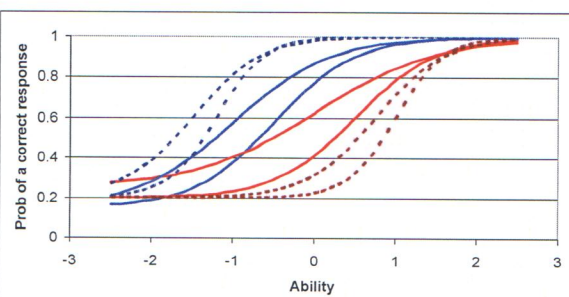
A short computer-adaptive test



GMAT TEST PREP
SUMMIT

GMAT

A short computer-adaptive test



GMAT TEST PREP
SUMMIT

GMAT

Advantages of Adaptive Tests

- ✓ Shorter with same score precision
- ✓ Difficulty is tailored to examinee's ability
 - No frustration from too hard questions
 - No wasted time on too easy questions
- ✓ More secure

GMAT TEST PREP
SUMMIT

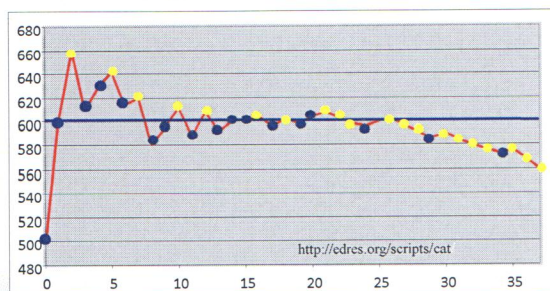
GMAT

Myths & Facts

GMAT TEST PREP
SUMMIT

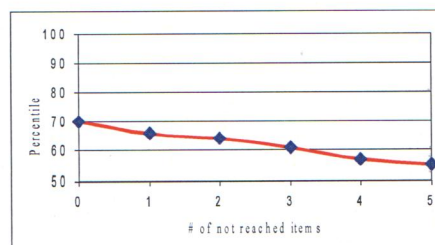
GMAT

Myth: The first 10 questions are critical and you should invest the most time in those items.



Fact: All Questions Count

Myth: It is more important to respond correctly than it is to finish.



Fact: There is a severe penalty for not completing the GMAT® test.

Other Myths

Studying GMAT® vocabulary lists will help you get a better score.

There are no GMAT® vocabulary lists.

An easier item means I got the previous item wrong.

Item difficulty can change with content.

You need a super-high score to get into a top school.

Schools try to find students that are a good match.

You need very advanced math skills to do well on the GMAT® test.

The math skills tested on the GMAT® test are quite basic.

Citation

Rudner, Lawrence M. (2011). *GMAT Psychometrics*.
Materials presented at the 2011 GMAC Test
Preparation Summit, New York, NY. 15 Sept 2011.

