

## SAT Scores and First Semester GPA

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### SAT and GPA

- Research Question

Do SAT scores have any predictive validity on freshman first semester GPA at a comprehensive community college?

### SAT and GPA

- Previous Research

SAT scores have predictive validity. (Bridgeman, McCamley-Jenkins & Ervin, 2000) Essentially, using SAT scores one can predict freshman GPA.

### SAT and GPA

- Other analyses from the Bridgeman et al study
  - \* SAT I predicts FGPA equally well across different ethnic groups
  - \* Correlations slightly higher for higher levels of parental education and family income
  - \* Grades were more predictable for math/science majors than other majors

### SAT and GPA

- Bridgeman et al Sample
  - \* 23 colleges - 13 public & 10 private (one of which was a junior college)
  - \* sample averages: 566 verbal, 581 math
  - \* sample should not be considered to be nationally representative – most colleges were well above the average in selectivity

### SAT and GPA

The sole junior college (South) in the Bridgeman et al study had:

- \* 210 students in the sample
- \* mean SAT of 962
- \* mean SAT-V 487 with SD 78
- \* mean SAT-M 475 with SD 69

### SAT and GPA

- Sample for this study
  - \* entering freshman who just graduated from high school in the same year
  - \* years used were from 2000 to 2003

### SAT and GPA

The comprehensive community college (North) in this study had:

- \* 4,491 students in the sample
- \* mean SAT of 940 with SD 149
- \* mean SAT-V 465 with SD 83
- \* mean SAT-M 475 with SD 83

### SAT and GPA

- Variables
  - \* the independent variable was the combined SAT scores and the dependent variable was the first semester GPA
  - \* two GPAs were used. The first was the college reported GPA, the second was a re-computed GPA (where F = W = 0).

### SAT and GPA

	CGPA	RGPA	CGPA > 0	RGPA > 0
N	4491	4491	4203	4262
SAT	.132	.097	.183	.131
SAT-V*	.124	.096	.173	.129
SAT-M*	.113	.078	.155	.105

\* Greater than 200

### Bridgeman et al: SAT & GPA

	1994	1995
N	45,100	48,039
SAT	.34	.35
SAT-V	.29	.30
SAT-M	.29	.30

## SAT and College GPA

	Gender Total		Black		Asian		Hispanic		White	
	F	M	F	M	F	M	F	M	F	M
N	2086	2117	187	140	60	59	92	64	1720	1813
SAT	<u>.26</u>	<u>.19</u>	.08	-.1	-.01	<u>.43</u>	<u>.25</u>	.07	<u>.27</u>	<u>.18</u>
SAT-V	<u>.23</u>	<u>.16</u>	.12	-.08	.003	<u>.44</u>	<u>.24</u>	.14	<u>.24</u>	<u>.14</u>
SAT-M	<u>.24</u>	<u>.18</u>	.02	-.1	-.03	<u>.28</u>	.2	-.02	<u>.25</u>	<u>.18</u>

## Bridgeman et al : SAT & GPA 1995

	Gender		Black		Asian		Hispanic		White	
	F	M	F	M	F	M	F	M	F	M
N	25144	23925	1826	1148	4087	3778	1934	1517	15920	15249
SAT	.39	.34	.37	.35	.37	.36	.37	.24	.35	.33
SAT-V	.32	.28	.29	.23	.26	.24	.29	.19	.30	.28
SAT-M	.35	.32	.34	.31	.31	.32	.31	.19	.31	.30

## Correlations for Three Score Ranges

- Bridgeman et al did an analysis with the following break in scores:
  - \* less than 1050
  - \* between 1050 and 1250
  - \* greater than 1250
- Conclusions
  - \*correlations higher for colleges in the highest score category
  - \*correlations higher for females in lower two categories, but the same for either sex in the highest category

## Correlations for Three Score Ranges

		Bridgem 1995		Comm. College*	
		M	F	M	F
N	< 1050	2,001	2,489	1,607	1,829
	1050-1250	17,589	19,444	622	378
	> 1250	3,335	3,181	69	15
SAT	< 1050	.46	.56	<u>.08</u>	<u>.15</u>
	1050-1250	.50	.55	<u>.15</u>	.063
	> 1250	.63	.61	-.007	.374

\*CGPA

## Grouping Students

- Students were grouped into two categories
  - \* math/science majors
  - \* non-science majors
- Drawbacks
  - \* students frequently change majors
  - \* similar mix of freshman courses

## Bridgeman et al Results - Means

- Mean and Standard Deviations of Scores and GPA by Major

	Math/Science		Other	
	Mean	S.D.	Mean	S.D.
SAT-V	578	84	560	84
SAT-M	628	76	564	83
FGPA	3.01	0.79	2.96	0.74

### Bridgeman et al Results - Correlations

		Total	M	F
N	MS	16,742	9,446	7,296
	O	29,553	12,556	16,997
SAT	MS	.57	.56	.60
	O	.51	.50	.56
SAT-V	MS	.50	.48	.52
	O	.41	.45	.50
SAT-M	MS	.54	.54	.58
	O	.47	.47	.52

### Com. Col. SAT, GPAs, & Majors

		Mean	St. Dev.	N
CGPA	Science	2.61	.84	240
	Non-Science	2.73	.77	3990
RGPA	Science	2.22	.98	240
	Non-Science	2.50	.88	3990
SAT	Science	1037.8	141.7	240
	Non-Science	931.3	150.3	3990
SAT-V	Science	539.8	75.8	240
	Non-Science	469.5	83	3990
SAT-M	Science	498.0	87.7	240
	Non-Science	461.8	84.2	3990

### Com. Col. SAT, GPAs, & Majors

Is the correlation of SAT and GPA of science majors greater than non-science majors?

### SAT, GPAs, & Majors

	Science		Non-Science	
	CGPA	RGPA	CGPA	RGPA
SAT	.032	.08	<u>.203</u>	<u>.149</u>
SAT-V	-.024	.009	<u>.192</u>	<u>.146</u>
SAT-M	.088	<u>.140</u>	<u>.173</u>	<u>.122</u>

### College Board Exams

- The College Board makes two exams
  - \* SAT (evaluate & select students)
  - \* ACCUPLACER (course placement)
- The community college in the study uses the ACCUPLACER as it's placement exam

### ACCUPLACER

The ACCUPLACER exam is a computer adaptive placement test with no time limit. It's scores are from 20 to 120. There are four categories used in testing:

- \* Reading Comprehension
- \* Sentence Skills
- \* Arithmetic
- \* Elementary Algebra

## College Board Exams

What do you expect the correlation between SAT and ACCUPLACER to be?

## SAT & ACCUPLACER Correlations

	ACPL	ACPL-V	ACPL-M
SAT	.636	.575	.464
SAT-V	.515	.591	.271
SAT-M	.571	.384	.526

ACPL-V = Reading Comprehension + Sentence Skills

ACPL-M = Arithmetic + Elementary Algebra

ACPL = ACPL-V + ACPL-M

N = 1528

## SAT & GPA Conclusion

Do SAT scores have any predictive validity on freshman first semester GPA at a comprehensive community college?

For the comprehensive community college in the study ...

**NO**

## Questions/Discussion

## Bibliography

Bridgeman, Brent, McCamley-Jenkins, Laura, Ervin, Nancy, *Predictions of Freshman Grade-Point Average From the Revised and Recentered SAT I: Reasoning Test*. College Board Research Report No. 2000-1, ETS RR No. 00-1, © 2000 by College Entrance Examination Board

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