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ABSTRACT

Data from the College Entrance Examination Board's Comparative Guidance and Placement (CGP) Program were used in these two studies of students at Central Virginia Community College (CVCC). In the first study, 1971 fall quarter performance in specific courses and in all courses was compared to CGP performance. The conclusions indicate that: (1) CGP scores in general are related to overall success in college course work; and (2) it is reasonable to use CGP performance as a predictor of specific course and overall success. The second study compared the ability (as measured by the CGP scores) of CVCC students, students in the Virginia Community College System, and students in all public comprehensive junior colleges for fall of 1970 and 1971, to help determine the academic progress of students at CVCC. There appears to be a clear difference in ability at entrance among community college students at the three levels (local, state, and national). For most of the subtests, CVCC students scored higher than the state junior college students, and the state group scored higher in ability than the national group. (RN)

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[STUDIES OF STUDENT PERFORMANCE ON  
THE COMPARATIVE GUIDANCE PLACEMENT PROGRAM]

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1972

JC 720 161

UNIVERSITY OF CALIF.  
LOS ANGELES

AUG 2 1972

CLEARINGHOUSE FOR  
JUNIOR COLLEGE  
INFORMATION

Some Relationships Between CGP Performance  
and Course Success  
For Students Entering CVCC in 1971-72  
Research Report No. 1-72

Director of Institutional Research

M. Douglas Reed

## INTRODUCTION

In 1971-72, Central Virginia Community College is utilizing the Comparative Guidance Placement Program (CGP)<sup>1</sup> for the third year. Data derived from student scores in 1969-70 were used to make predictions in 1970-71 concerning academic placement. In 1970-71, CVCC counselors made academic placement decisions based on 1970-71 student performance, modifying the 1969-70 "cut-off" scores where they did not appear to be useful or appropriate. This year, based on performance data from 1971-72 entering students, cut off scores will be further modified as necessary.

## PROBLEM

The problem to be discussed is whether the CGP scores are related to success in course work; and if so, what are the average levels of CGP performance at each grade level.

## PROCEDURE

Fall quarter performance in course work was compared to CGP performance for students entering CVCC in 1971-72. This was done for specific courses as well as summarily for all students in all courses. Comparisons were made both by means of correlations and descriptive averages. To give a broad picture of the academic performance of entering students in the fall of 1971, the typical or average performance of each of the CGP subtests was studied for each of these five

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<sup>1</sup>See CGP Interpretive Manual for Counselors, Administrators and Faculty 1969-70, CEEB, 1969 for a general description of this test.

categories: (1) Those who earned at least one "A" in the fall quarter; (2) Those who earned at least one "B" in the fall quarter; (3) "C"; (4) "D"; and (5) "F." Table one summarizes these data.

A closer analysis of academic performance was made by describing the typical or average performance on each of the CGP subtests for those earning grades of A, B, C, D, and F for each of the courses: Accounting 111 (Table 2), Arts 111 (Table 3), Biology 101 (Table 4), Business Administration 100 (Table 5), Chemistry 111 (Table 6), Data Processing 106 (Table 7), Drafting 111 (Table 8), Economics 211 (Table 9), English 101 (Table 10), English 111 (Table 11), Engineering 100 (Table 12), History 101 (Table 13), History 111 (Table 14), Health 100 (Table 15), Industrial 111 (Table 16), Mathematics 101 (Table 17), Mathematics 121 (Table 18), Mathematics 151 (Table 19), Mathematics 161 (Table 20), Mathematics 181 (Table 21), Natural Science 111 (Table 22), Psychology 128 (Table 23), Psychology 201 (Table 24), Secretarial Science 111 (Table 25), Secretarial Science 121 (Table 26), Sociology 101 (Table 27), Spanish 101 (Table 28).

In an effort to determine the relationship between the CGP subtest performances and these specific courses, a correlational study was made. Table 30 summarizes these data, indicating whether the correlation coefficients obtained are attributable to chance, or to some systematic relationship.

## FINDINGS

### Table 1.

The data indicate a definite upward trend in average scores on all subtests from the category of those students who earned at least

one "F" through category "A". The only exceptions are: (1) Academic Motivation, where the "F" group is .05 standard score points higher than the "D" group; and (2) Mosaic Comparisons, where the "D" group is .14 standard score points higher than the "C" group.

Tables 2-28.

In some instances marked upward trends on specific CGP subtest scores are noted from categories "F" through "A" for specific courses. For example the Reading, Verbal, Sentences, Mathematics II, and Letter Groups subtests of the CGP show an obvious upward trend in scores all the way from the "F" through "A" categories in Biology 101; from "F" through "A" in the Sentences and Academic Motivation subtests in English 111; from "F" through "A" in the Letter Groups subtest in History 111; from "F" through "A" in the Reading subtest in Industrial 111; from "F" through "A" in the Math II, Year 2000, and Academic Motivation subtests in Math 161; and from "F" through "A" in the Reading and Year 2000 subtests in Natural Science 111.

Looking only at the "D" through "A" categories, the Sentences, Math II, and Year 2000 subtests show obvious upward trends in Math 101. Those same categories show the same trends for the Reading and Verbal subtests for English 111 and for the Sentences, Year 2000, and Letter Groups subtests for Secretarial Science 111.

On the other hand, many categories for many courses do not show marked trends but have isolated exceptions, primarily where there are limited numbers of students in various categories (e.g., only 2 or 3).

Although obvious trends grade by grade are not always present, the general relationships between low CGP scores and low grades in courses

prevail. This offers support for decisions regarding probable performance levels in course work. The question remains: Although trends appear are they real or spurious? To get at whether apparent relationships between two variables are non-accidental and systematic, or attributable to statistical "chance" factors we examine the relationship by means of the coefficient of correlation. The coefficient of correlation is considered as an index of the tendency for pairs of measures to vary together. The greater the tendency, the higher the correlation. Ordinarily statisticians use the "product-moment" method to compute a coefficient of correlation and it is designated by the symbol "r." Since this may be found in any standard text on statistics we will not explain it here.

There are two ways to express the relationship between variable traits: a verbal description of its relative size and as an indication of its predictive power. Verbal descriptions are as follows<sup>1</sup>:

- 0.80 and up: very high correlation
- 0.50 to 0.79: substantial correlation
- 0.30 to 0.49: some correlation
- 0.20 to 0.29: slight correlation
- 0.00 to 0.19: practically no correlation

The significance of any coefficient of correlation depends greatly upon the size of the sample on which it is based, and upon how representative the constituents are. Statisticians have devised methods for taking into account the size of the sample in determining the significance of correlation coefficient. Table 29 gives the

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<sup>1</sup>C.P. Froehlich and K.B. Hoyt, Guidance Testing, 3rd ed. (Chicago: Science Research Associates, Inc., 1957, p. 59).

significance of correlations in terms of .01 and .05 levels which indicate the likelihood that a coefficient of a given magnitude would occur by chance alone, i.e., at the .01 level there is one chance in a hundred and at the .05 level there are five chances in a hundred.<sup>2</sup>

Table 30.

For specific courses for specific subtests we find that the Reading subtest is related significantly to grade performance in 44% (12 of 27) of the courses investigated. The Verbal subtest is related significantly to grade performance in 48% (13 of 27) of the courses investigated; Sentences in 52%; Math I in 33%; Math II in 37%; Year 2000 in 48%; Mosaic Comparisons in 15%; Letter Groups in 19%; and Academic Motivation in 22%.

More importantly, however, it is evident that small numbers in some courses contribute appreciably to the lack of significant correlations for many of the courses with subtests. Where sample sizes are over 3 (the minimum sample size which supports the assumption of a normal distribution), we find that Biology 101 is significantly correlated to all 9 CGP subtests (100%); English 101 with 5 of 9 (56%); and English 111 with 3 of 9 (33%). Where samples are over 30 in 8 of 9 subtests (i.e., when Math II is smaller, but all others are 30 or more), we find that Math 151 is significantly correlated to 7 of 8 subtests (87%); Math 101 and Math 161 with 6 of 8 (75%); Business Administration 100 and Natural Science 111 with 5 of 8 (62%); History 101 and 111 with 4 of 8 (50%); and Accounting 111 with 3 of 8 (37%).

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<sup>2</sup>Ibid., pp. 59, 60.



On the other hand, courses with sample sizes under 30 account for 105 of the 157 tests of significance (67%) for which we found only a chance relationship.

Looking at the data another way, we find that some subtests correlate well with course grades, while other subtests do not. We see for example that of the 14 courses having sample sizes of 30 or greater, the Sentences subtest is significantly correlated with grade performance in 11 of 14 courses (79%), the Year 2000 subtest with 10 of 14 (71%), the Reading and Verbal subtests with 9 of 14 (64%), and the Academic Motivation subtest with 6 of 14 (43%).

For the Math subtests we should note that although the sample size for a course may be 30 or greater, since a student takes either Math I or Math II (but not both), some samples fall below 30 in Math II. For Math I, for the 11 courses which had sample sizes of 30 or greater, we find that the Math I subtest is significantly correlated with grade performance in 5 of them (45%). The Math II subtest is significantly correlated with grade performance in 2 of the 3 courses (67%) which had sample sizes of 30 or greater.

In other words, most of the non-significant findings are attributable to low sample sizes and two subtests (i.e., Mosaic Comparisons and Letter Groups) which apparently are not related to what is being measured by course grades.

#### CONCLUSION

Apparently CGP scores in general are related to overall success in college course work, at least insofar as it was investigated in this report. The data support the procedure of making general probability statements concerning course placement.

Since student performance in some of the specific courses investigated is significantly related to performance on specific subtests of the CGP, it is reasonable to use CGP performance as a predictor of both specific course success and overall success in the fall quarter.

We are less confident in making predictions concerning specific course success from CGP subtest performance where sample sizes are small. Although trends appear they may be spurious, and therefore further study is required. It appears evident that predictions this year based on data from 1971-72 are more reliable than those of 1970-71 based on data from 1969-70, due primarily to more detailed study and greater sample sizes.

**AVERAGE PERFORMANCE  
OF ALL STUDENTS  
EARNING AT LEAST  
ONE OF ANY GRADE**

**CGP Subtests**

**TABLE I**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
<b><u>A</u></b>	203	203	203	120	83	203	203	203	201
<b>Avg. St. Sc.</b>	57.45	56.98	57.70	55.45	61.23	58.42	52.61	58.01	52.62
<b>Stand. Dev.</b>	8.22	7.91	7.48	9.07	8.71	8.20	7.54	7.49	10.16
<b><u>B</u></b>	433	433	433	283	150	433	430	433	418
<b>Avg. St. Sc.</b>	55.86	54.77	55.26	54.63	59.09	56.23	51.33	56.36	51.77
<b>Stand. Dev.</b>	8.69	8.21	8.07	8.63	7.56	8.88	7.41	7.92	9.10
<b><u>C</u></b>	441	441	441	310	131	441	439	441	424
<b>Avg. St. Sc.</b>	52.63	51.68	52.63	52.55	56.98	53.35	49.81	54.74	50.26
<b>Stand. Dev.</b>	8.63	8.54	7.99	8.20	7.29	8.31	7.60	7.97	8.63
<b><u>D</u></b>	177	177	177	128	47	177	176	177	164
<b>Avg. St. Sc.</b>	51.06	50.10	50.54	50.61	53.89	51.20	49.95	53.54	49.00
<b>Stand. Dev.</b>	10.16	9.55	7.87	8.16	7.11	10.20	8.45	8.16	8.46
<b><u>E</u></b>	135	135	135	92	41	135	133	135	131
<b>Avg. St. Sc.</b>	49.04	47.75	47.67	50.33	52.71	49.31	49.22	52.61	49.05
<b>Stand. Dev.</b>	9.82	9.55	8.11	8.52	8.09	11.26	8.17	8.19	8.51

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**TABLE 2  
CGP Subtests**

	Reading ACCT 111	Verbal ACCT 111	Sentences ACCT 111	Math I ACCT 111	Math II ACCT 111	Year 2000 ACCT 111	Mos. Comp. ACCT 111	Letter Groups ACCT 111	Academic Mot. ACCT 111
<b>A</b>	7	7	7	4	3	7	7	7	7
Avg. St. Sc.	59.43	56.14	53.714	55.00	64.33	60.00	56.142	54.428	50.86
Stand. Dev.	4.649	4.488	9.604	8.406	13.650	9.797	5.398	9.778	10.526
<b>B</b>	11	11	11	8	3	11	11	11	11
Avg. St. Sc.	53.73	52.73	49.55	53.00	62.67	57.82	50.818	57.181	51.36
Stand. Dev.	9.880	5.917	9.872	8.847	10.016	11.703	9.558	9.589	9.200
<b>C</b>	12	12	12	8	4	12	12	12	12
Avg. St. Sc.	51.75	51.42	53.92	48.88	56.00	53.50	48.67	57.67	53.00
Stand. Dev.	11.306	10.774	7.993	7.623	7.702	7.971	4.539	9.068	5.325
<b>D</b>	10	10	10	7	3	10	10	10	9
Avg. St. Sc.	50.20	50.10	48.40	49.714	61.00	53.40	48.50	51.60	48.11
Stand. Dev.	7.685	9.608	5.541	8.199	5.196	8.099	7.763	7.961	9.061
<b>F</b>	8	8	8	5	3	8	8	8	7
Avg. St. Sc.	44.13	43.63	51.38	50.00	47.67	51.00	50.13	52.88	51.86
Stand. Dev.	9.538	7.927	5.926	7.382	15.567	10.636	9.833	8.724	7.244

AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:

TABLE 3  
CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
<u>ARTS III</u>	ARTS III	ARTS III	ARTS III	ARTS III	ARTS III	ARTS III	ARTS III	ARTS III	ARTS III
<u>A</u> Number	3	3	3	2	1	3	3	3	3
Avg. St. Sc.	59.33	62.00	61.00	55.00	65.00	59.00	49.67	61.00	50.67
Stand. Dev.	1.527	4.582	2.000	14.142	----	8.660	1.527	6.557	4.725
<u>B</u> Number	12	12	12	10	2	12	12	12	10
Avg. St. Sc.	56.33	53.92	54.00	52.50	49.50	57.00	54.08	54.33	51.90
Stand. Dev.	8.304	9.179	8.168	8.436	3.535	9.135	5.017	6.414	10.049
<u>C</u> Number	10	10	10	7	3	10	10	10	9
Avg. St. Sc.	50.10	49.30	53.60	50.86	53.00	52.50	48.30	51.90	52.78
Stand. Dev.	6.789	5.355	6.149	8.071	12.124	8.276	10.562	8.504	7.980
<u>D</u> Number									
Avg. St. Sc.									
Stand. Dev.									
<u>F</u> Number	1	1	1	1	-	1	1	1	1
Avg. St. Sc.	47.00	45.00	49.00	40.00	----	27.00	48.00	46.00	49.00
Stand. Dev.									



AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:

TABLE 4

CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
<u>BIOLOGY 101</u>	101 BIO101	101 BIO101	101 BIO101	101 BIO101	101 BIO101	101 BIO101	101 BIO101	101 BIO101	101 BIO101
<u>A</u> Number	1	1	1	---	1	1	1	1	1
Avg. St. Sc.	72.00	70.00	67.00	---	69.00	57.00	68.00	68.00	45.00
Stand. Dev.	---	---	---	---	---	---	---	---	---
<u>B</u> Number	35	35	35	22	13	35	35	35	35
Avg. St. Sc.	59.09	57.60	58.914	59.64	63.92	57.94	52.800	59.314	53.171
Stand. Dev.	6.917	7.601	6.818	6.358	5.936	8.320	7.347	5.097	7.968
<u>C</u> Number	47	47	47	30	17	47	47	47	45
Avg. St. Sc.	57.23	56.04	56.53	58.53	57.65	55.79	49.96	56.49	50.51
Stand. Dev.	7.369	8.190	7.168	6.044	7.565	7.040	5.710	6.896	8.319
<u>D</u> Number	29	29	29	22	7	29	29	29	28
Avg. St. Sc.	52.83	51.310	51.068	51.272	54.71	52.45	50.59	53.17	48.82
Stand. Dev.	7.290	6.698	6.881	5.616	4.151	6.641	5.130	8.581	7.547
<u>E</u> Number	24	24	24	18	6	24	24	24	24
Avg. St. Sc.	49.33	47.42	46.50	53.83	50.67	52.62	49.13	51.875	48.00
Stand. Dev.	7.816	8.672	5.978	7.221	3.829	10.239	7.249	8.157	7.117

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**BUSINESS  
ADMINISTRATION 100**

**TABLE 5  
CGP Subtests**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	BUAD 100	BUAD 100	BUAD 100	BUAD 100	BUAD 100	BUAD 100	BUAD 100	BUAD 100	BUAD 100
<b>A</b>	Number	13	13	11	2	13	13	13	13
	Avg. St. Sc.	55.00	54.38	53.09	62.00	55.15	49.461	52.38	52.31
	Stand. Dev.	10.590	11.420	9.914	5.656	8.877	10.540	8.808	12.996
<b>B</b>	Number	35	35	24	11	35	35	35	35
	Avg. St. Sc.	53.74	51.40	50.83	59.64	56.14	50.29	53.89	51.285
	Stand. Dev.	8.067	10.296	8.159	8.127	11.471	7.629	9.257	7.135
<b>C</b>	Number	31	31	24	7	31	31	31	26
	Avg. St. Sc.	46.03	49.29	46.083	56.57	49.26	44.19	52.16	52.77
	Stand. Dev.	9.782	8.501	6.915	11.385	8.992	9.202	9.320	8.705
<b>D</b>	Number	14	14	10	3	14	14	14	13
	Avg. St. Sc.	44.64	45.285	43.20	53.67	44.36	53.21	51.00	52.00
	Stand. Dev.	11.365	9.042	5.959	9.291	12.067	9.082	10.926	5.131
<b>F</b>	Number	7	7	4	3	7	7	7	7
	Avg. St. Sc.	44.29	46.14	42.00	48.00	46.71	48.71	50.86	48.14
	Stand. Dev.	8.538	6.644	3.366	6.244	7.718	6.524	6.335	8.454



**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**TABLE 6  
CGP Subtests**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
<b>CHEMISTRY 111</b>	CHEM 111	CHEM 111	CHEM 111	CHEM 111	CHEM 111	CHEM 111	CHEM 111	CHEM 111	CHEM 111
<b>A</b>	3	3	3	2	1	3	3	3	3
Avg. St. Sc.	57.67	58.67	55.33	57.00	67.00	57.00	51.00	59.67	48.67
Stand. Dev.	3.785	4.041	4.725	11.313	0.000	0.000	6.244	1.527	11.590
<b>B</b>	8	8	8	4	4	8	8	8	8
Avg. St. Sc.	55.75	54.875	57.38	64.50	62.25	60.75	55.75	58.63	48.88
Stand. Dev.	9.192	8.043	5.208	4.203	8.808	8.746	3.693	8.192	14.740
<b>C</b>	7	7	7	3	4	7	7	7	7
Avg. St. Sc.	47.43	46.43	49.14	46.00	53.50	45.43	46.86	50.86	53.86
Stand. Dev.	9.071	7.502	3.891	7.211	12.396	8.904	7.988	7.289	9.957
<b>D</b>	2	2	2	1	1	2	2	2	2
Avg. St. Sc.	53.00	48.00	58.00	54.00	61.00	55.50	52.50	61.00	54.50
Stand. Dev.	7.071	4.242	9.899	0.00	0.000	2.121	12.020	4.242	10.606
<b>F</b>	6	6	6	5	1	6	6	6	6
Avg. St. Sc.	50.00	50.83	50.17	52.40	51.00	48.50	50.33	52.17	52.50
Stand. Dev.	10.583	10.943	7.332	4.827	0.000	8.780	11.272	5.192	6.715







**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**CGP Subtests**

**TABLE 8**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	DRAFT III	DRAFT III	DRAFT III	DRAFT III	DRAFT III	DRAFT III	DRAFT III	DRAFT III	DRAFT III
<b>A</b>	5	5	5	3	2	5	5	5	5
Avg. St. Sc.	55.20	57.60	54.20	64.00	69.00	58.80	54.40	59.20	56.00
Stand. Dev.	7.694	5.813	6.610	9.539	4.242	4.024	3.577	3.033	13.729
<b>B</b>	10	10	10	6	4	10	9	10	10
Avg. St. Sc.	47.60	46.50	47.70	58.33	54.00	50.70	53.44	55.70	53.20
Stand. Dev.	8.408	6.381	8.124	9.688	6.480	10.995	4.126	8.097	8.728
<b>C</b>	4	4	4	3	1	4	4	4	4
Avg. St. Sc.	56.75	50.50	50.75	60.67	57.00	56.25	54.25	58.50	41.50
Stand. Dev.	12.711	7.505	6.130	7.637	0.00	9.604	4.500	9.327	4.434
<b>D</b>	1	1	1	1	0	1	1	1	1
Avg. St. Sc.	45.00	40.00	38.00	52.00	0.00	33.00	46.00	58.00	60.00
Stand. Dev.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016
<b>F</b>	4	4	4	3	1	4	4	4	4
Avg. St. Sc.	47.00	44.00	41.75	40.67	53.00	47.25	49.00	51.50	49.25
Stand. Dev.	10.614	6.218	9.287	8.020	0.00	12.338	11.518	9.814	7.588

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**ECONOMICS 211**

**CGP Subtests**

**TABLE 9**

	Reading ECON 211	Verbal ECON 211	Sentences ECON 211	Math I ECON 211	Math II ECON 211	Year ECON 211 2000	Mos. Comp. ECON 211	Letter Groups ECON 211	Academic Mot. ECON 211
<b>A</b>									
Number									
Avg. St. Sc.									
Stand. Dev.									
<b>B</b>	4	4	4	4	0	4	4	4	4
Number	4	4	4	4	0	4	4	4	4
Avg. St. Sc.	57.00	58.25	53.75	57.75	0.00	52.50	47.00	57.50	37.50
Stand. Dev.	9.345	8.500	6.130	7.274	0.000	3.872	2.943	5.259	8.812
<b>C</b>	10	10	10	7	3	10	10	10	10
Number	10	10	10	7	3	10	10	10	10
Avg. St. Sc.	53.30	54.90	55.70	49.428	64.00	52.20	54.20	52.90	50.70
Stand. Dev.	9.298	8.265	6.634	6.803	7.211	9.295	5.050	11.723	12.229
<b>D</b>	3	3	3	2	1	3	3	3	3
Number	3	3	3	2	1	3	3	3	3
Avg. St. Sc.	63.67	63.00	58.00	44.50	55.00	59.00	50.00	56.00	46.00
Stand. Dev.	4.041	1.000	1.732	4.949	0.000	3.464	10.000	5.000	14.000
<b>F</b>	2	2	2	1	1	2	2	2	2
Number	2	2	2	1	1	2	2	2	2
Avg. St. Sc.	44.00	50.000	51.00	53.00	46.00	37.50	28.50	49.00	56.50
Stand. Dev.	1.414	0.000	2.828	0.000	0.000	2.121	9.192	8.485	10.606



**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**TABLE 10**

**CGP Subtests**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	ENGL 101	ENGL 101	ENGL 101	ENGL 101	ENGL 101	ENGL 101	ENGL 101	ENGL 101	ENGL 101
<b>A</b>	12	12	12	6	6	12	12	12	12
Avg. St. Sc.	56.75	56.58	59.00	53.00	60.33	62.25	52.25	62.50	51.75
Stand. Dev.	8.147	9.059	7.555	7.348	8.140	8.593	4.494	5.916	11.062
<b>B</b>	57	57	57	37	20	57	57	57	53
Avg. St. Sc.	56.81	55.26	56.04	54.30	57.50	56.58	52.53	56.74	53.57
Stand. Dev.	7.104	6.653	7.272	8.205	6.774	7.905	8.833	7.536	9.851
<b>C</b>	58	58	58	40	18	58	57	58	57
Avg. St. Sc.	51.21	50.41	48.60	48.23	56.50	52.50	49.28	52.413	50.39
Stand. Dev.	8.372	7.967	8.121	8.122	7.979	8.655	7.308	8.425	9.290
<b>D</b>	12	12	12	9	2	12	12	12	11
Avg. St. Sc.	48.83	48.00	48.92	47.22	55.00	48.50	52.00	53.00	46.27
Stand. Dev.	10.624	8.665	9.297	12.163	12.727	13.944	9.881	8.811	6.198
<b>E</b>	3	3	3	2	1	3	3	3	3
Avg. St. Sc.	47.00	47.33	54.00	46.50	70.00	51.00	43.00	53.33	51.67
Stand. Dev.	18.248	12.423	15.716	12.020	0.000	15.874	3.605	17.616	6.506

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**ENGLISH 111**

**CGP Subtests**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	ENGL 111	ENGL 111	ENGL 111	ENGL 111	ENGL 111	ENGL 111	ENGL 111	ENGL 111	ENGL 111
<b>A</b>	23	23	23	11	12	23	23	23	23
Avg. St. Sc.	59.30	59.87	60.22	57.46	61.75	59.74	54.00	59.91	55.30
Stand. Dev.	7.086	6.710	7.476	10.162	7.509	7.723	6.473	5.688	8.556
<b>B</b>	75	75	75	52	23	75	75	75	74
Avg. St. Sc.	56.81	55.55	56.53	54.35	59.26	55.64	49.85	55.93	50.62
Stand. Dev.	8.327	7.997	6.816	7.278	6.803	7.987	6.558	7.913	8.738
<b>C</b>	49	49	49	36	13	49	49	49	48
Avg. St. Sc.	54.04	52.82	52.73	56.14	58.23	54.73	51.10	55.47	48.90
Stand. Dev.	7.588	7.434	8.184	7.635	6.220	7.926	6.345	7.124	7.644
<b>D</b>	12	12	12	8	4	12	12	12	11
Avg. St. Sc.	56.42	53.17	50.58	53.50	54.25	49.50	48.58	54.00	45.73
Stand. Dev.	8.680	10.752	8.349	7.578	9.673	8.339	5.664	6.252	6.783
<b>F</b>	5	5	5	4	1	5	5	5	5
Avg. St. Sc.	58.80	59.40	49.80	57.50	55.00	57.00	47.80	55.20	40.00
Stand. Dev.	4.969	5.941	6.610	9.814	0.000	15.443	7.395	8.408	9.027

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**CGP Subtests**

**TABLE 12**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
<b>ENGINEERING 100</b>	ENGR 100	ENGR 100	ENGR 100	ENGR 100	ENGR 100	ENGR 100	ENGR 100	ENGR 100	ENGR 100
<b>A</b>	2	2	2	1	1	2	2	2	2
Avg. St. Sc.	62.50	61.00	62.50	73.00	64.00	64.50	56.00	63.00	41.00
Stand. Dev.	4.949	2.828	2.121	0.300	0.000	2.121	2.828	7.071	8.485
<b>B</b>	2	2	2	0	2	2	2	2	2
Avg. St. Sc.	55.50	54.50	50.00	0.00	62.00	48.00	41.00	51.50	36.00
Stand. Dev.	9.192	9.192	9.899	0.000	7.071	0.000	9.899	9.192	1.414
<b>C</b>	5	5	5	4	1	5	5	5	5
Avg. St. Sc.	48.00	47.00	51.80	60.75	55.00	61.80	50.20	56.80	43.00
Stand. Dev.	3.276	8.916	9.808	5.057	0.000	9.148	4.086	7.661	2.449
<b>D</b>	3	3	3	2	1	3	2	3	3
Avg. St. Sc.	44.67	45.00	57.33	58.00	60.00	50.00	54.50	59.00	48.67
Stand. Dev.	2.081	4.582	6.658	1.414	0.000	6.244	3.535	3.605	13.428
<b>F</b>	17	17	17	8	9	17	16	17	17
Avg. St. Sc.	49.76	47.12	45.94	55.50	53.22	49.41	53.31	55.71	51.59
Stand. Dev.	11.042	8.666	8.219	9.426	9.270	11.816	5.793	9.425	7.786

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**TABLE 13**

**CGP Subtests**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
<b>HISTORY 101</b>	HIST 101	HIST 101	HIST 101	HIST 101	HIST 101	HIST 101	HIST 101	HIST 101	HIST 101
<b>A</b>	2	2	2	1	1	2	2	2	2
Number	59.00	66.00	57.50	40.00	72.00	57.00	50.00	53.50	59.00
Avg. St. Sc.	19.798	11.313	19.091	0.000	0.00	21.213	19.798	14.849	19.799
Stand. Dev.									
<b>B</b>	18	18	18	11	7	18	18	18	18
Number	61.33	61.33	59.22	57.73	63.00	59.33	52.94	58.89	50.33
Avg. St. Sc.	7.194	7.178	5.275	7.669	8.524	8.331	5.915	5.799	8.124
Stand. Dev.									
<b>C</b>	23	23	23	14	9	23	23	23	21
Number	55.35	53.48	54.83	56.36	55.89	54.26	50.09	54.65	51.14
Avg. St. Sc.	4.628	5.853	5.122	6.270	6.641	8.481	6.444	7.778	8.632
Stand. Dev.									
<b>D</b>	4	4	4	2	2	4	4	4	4
Number	55.25	53.75	54.00	52.00	59.00	56.25	48.00	59.00	45.50
Avg. St. Sc.	13.25	14.66	10.392	16.970	4.242	18.553	10.099	8.906	10.083
Stand. Dev.									
<b>F</b>	6	6	6	3	3	6	6	6	6
Number	54.33	54.50	51.00	54.33	59.33	51.00	45.00	56.67	55.17
Avg. St. Sc.	4.226	5.753	6.000	5.507	2.516	10.217	9.295	5.573	11.478
Stand. Dev.									

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**TABLE 14**

**CGP Subtests**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
<b>HISTORY 111</b>	111 HISIH	111 HISIH	111 HISIH	111 HISIH	111 HISIH	111 HISIH	111 HISIH	111 HISIH	111 HISIH
<b>A</b> Number	7	7	7	6	1	7	7	7	7
Avg. St. Sc.	55.71	55.86	50.29	57.67	66.00	56.14	52.00	59.71	57.29
Stand. Dev.	5.023	7.151	7.064	9.647	0.000	9.118	5.744	6.575	10.061
<b>B</b> Number	29	29	29	18	11	29	29	29	28
Avg. St. Sc.	58.48	56.24	57.00	58.28	60.18	56.48	52.59	57.72	54.04
Stand. Dev.	9.206	8.662	7.874	7.736	6.896	7.940	6.549	8.070	7.767
<b>C</b> Number	44	44	44	35	9	44	44	44	43
Avg. St. Sc.	53.50	52.75	53.98	54.00	58.11	53.86	50.16	55.89	49.53
Stand. Dev.	7.641	7.433	7.822	7.178	7.672	7.43	5.636	8.392	7.914
<b>D</b> Number	12	12	12	7	5	12	12	12	12
Avg. St. Sc.	52.92	51.67	50.33	54.86	54.80	54.25	50.67	55.42	42.50
Stand. Dev.	8.306	7.302	7.714	6.743	4.381	10.737	4.735	6.388	7.416
<b>F</b> Number	13	13	13	10	3	13	13	13	12
Avg. St. Sc.	54.92	53.62	50.92	52.10	58.67	52.38	46.23	54.85	46.75
Stand. Dev.	10.363	11.608	11.463	7.837	5.773	11.463	8.348	7.893	7.423



AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:

TABLE 15  
CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
<u>HEALTH 100</u>	001 HLTH 100	001 HLTH 100	001 HLTH 100	001 HLTH 100	001 HLTH 100	001 HLTH 100	001 HLTH 100	001 HLTH 100	001 HLTH 100
<u>A</u> Number	12	12	12	7	5	12	12	12	12
Avg. St. Sc.	56.58	55.08	56.42	52.86	50.60	55.00	50.50	56.83	50.08
Stand. Dev.	6.542	6.855	5.680	7.033	7.300	9.936	7.971	8.952	8.338
<u>B</u> Number	7	7	7	5	2	7	7	7	7
Avg. St. Sc.	52.43	52.57	54.57	51.00	57.50	54.00	49.29	54.14	53.33
Stand. Dev.	12.528	12.541	9.306	10.488	0.707	12.961	6.897	8.355	4.718
<u>C</u> Number									
Avg. St. Sc.									
Stand. Dev.									
<u>D</u> Number									
Avg. St. Sc.									
Stand. Dev.									
<u>F</u> Number	2	2	2	2	0	2	2	2	2
Avg. St. Sc.	43.50	46.50	52.00	45.00	0.00	51.00	51.00	50.50	54.00
Stand. Dev.	4.949	0.707	7.071	2.828	0.000	0.000	1.414	0.707	21.213

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**CGP Subtests**

**TABLE 16**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	IND I	IND I	IND I	IND I	IND I	IND I	IND I	IND I	IND I
<b>A</b>	2	2	2	2	0	2	2	2	2
Avg. St. Sc.	59.00	60.50	60.00	67.00	0.00	66.00	58.50	57.00	33.50
Stand. Dev.	0.000	2.121	1.414	8.485	0.000	4.242	6.363	1.414	2.121
<b>B</b>	3	3	3	1	2	3	3	3	3
Avg. St. Sc.	54.33	50.00	47.67	49.00	57.00	45.00	52.33	47.67	47.33
Stand. Dev.	5.033	2.645	5.033	0.000	0.000	3.000	3.785	6.429	9.609
<b>C</b>	1	1	1	0	1	1	1	1	1
Avg. St. Sc.	51.00	41.00	39.00	0.00	53.00	63.00	61.00	60.00	43.00
Stand. Dev.	0.000	0.000	0.0000	0.000	0.000	0.000	0.000	0.000	0.001
<b>D</b>	5	5	5	4	1	5	5	5	5
Avg. St. Sc.	50.80	47.20	49.00	60.25	45.00	57.00	56.60	59.60	48.60
Stand. Dev.	16.192	8.757	7.314	6.291	0.000	9.721	4.505	5.224	11.781
<b>E</b>	6	6	6	4	2	6	5	6	6
Avg. St. Sc.	44.00	40.83	38.50	47.25	47.50	37.50	45.40	49.33	50.83
Stand. Dev.	6.228	3.430	5.468	13.073	9.192	9.049	7.266	10.500	5.636

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**TABLE 17  
CGP Subtests**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
<b>MATHEMATICS 101</b>	MATH 101	MATH 101	MATH 101	MATH 101	MATH 101	MATH 101	MATH 101	MATH 101	MATH 101
<b>A</b>	14	14	14	3	11	14	14	14	13
Avg. St. Sc.	54.214	53.79	56.79	60.00	58.73	61.50	52.86	59.93	53.69
Stand. Dev.	9.799	9.609	6.727	3.605	12.034	8.131	3.779	6.195	11.919
<b>B</b>	10	10	10	6	4	10	10	10	10
Avg. St. Sc.	56.30	56.10	50.60	55.33	51.75	53.10	49.20	54.20	49.60
Stand. Dev.	8.233	8.412	7.705	5.537	5.97	13.641	8.625	9.330	8.884
<b>C</b>	8	8	8	7	1	8	8	8	7
Avg. St. Sc.	51.00	49.00	49.13	49.00	49.00	51.38	55.25	55.13	49.43
Stand. Dev.	7.171	8.263	4.969	6.082	0.000	4.373	10.347	6.937	6.754
<b>D</b>	8	8	8	7	1	8	8	8	7
Avg. St. Sc.	44.50	45.88	47.50	49.71	46.00	47.25	49.00	49.00	56.14
Stand. Dev.	10.042	9.657	5.732	4.309	0.000	9.587	9.365	6.256	4.913
<b>E</b>									
Number									
Avg. St. Sc.									
Stand. Dev.									

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**TABLE 18**

**CGP Subtests**

	Reading MATH 121	Verbal MATH 121	Sentences MATH 121	Math I MATH 121	Math II MATH 121	Year 2000 MATH 121	Mos. Comp. MATH 121	Letter Groups MATH 121	Academic Mot. MATH 121
<b>A</b>	8	8	8	5	3	8	8	8	8
Avg. St. Sc.	55.63	54.00	52.50	58.20	55.67	62.63	54.38	59.75	45.50
Stand. Dev.	7.347	9.411	11.032	11.122	7.371	7.927	7.670	5.147	9.023
<b>B</b>	6	6	6	5	1	6	5	6	6
Avg. St. Sc.	51.83	51.17	55.50	63.00	55.00	60.00	52.40	58.50	45.67
Stand. Dev.	9.968	7.833	6.715	7.483	0.000	9.674	5.683	6.252	10.764
<b>C</b>	5	5	5	0	5	5	5	5	5
Avg. St. Sc.	53.60	51.80	52.60	0.00	57.40	49.20	48.60	54.80	41.20
Stand. Dev.	5.899	5.263	5.727	0.000	7.569	5.449	8.590	5.805	8.438
<b>D</b>	1	1	1	1	0	1	1	1	1
Avg. St. Sc.	69.00	56.00	49.00	54.00	0.00	63.00	54.00	60.00	47.00
Stand. Dev.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
<b>E</b>									
Number									
Avg. St. Sc.									
Stand. Dev.									

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:

TABLE 19

CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	MATH 151	MATH 151	MATH 151	MATH 151	MATH 151	MATH 151	MATH 151	MATH 151	MATH 151
<u>A</u>	14	14	14	10	4	14	14	14	14
	55.29	53.79	58.14	51.70	59.75	60.43	52.79	57.43	54.36
	8.361	6.885	5.709	7.498	4.645	5.243	8.594	8.354	9.228
<u>B</u>	11	11	11	8	3	11	11	11	11
	51.00	51.00	57.00	54.88	62.67	59.45	50.09	54.64	56.45
	12.049	8.342	6.196	10.986	4.163	5.820	8.395	11.369	7.979
<u>C</u>	11	11	11	8	3	11	11	11	10
	50.91	48.27	54.18	49.50	53.00	52.09	48.82	55.27	49.30
	10.774	10.169	4.874	7.111	3.464	8.723	7.480	7.156	8.165
<u>D</u>	5	5	5	5	0	5	5	5	5
	55.00	55.80	55.20	47.80	0.00	54.00	46.00	54.40	51.20
	5.099	9.418	7.563	3.033	0.000	5.612	14.404	6.655	7.981
<u>F</u>	9	9	9	6	2	9	9	9	8
	41.56	40.00	44.56	39.50	44.50	43.33	52.89	46.44	47.75
	11.001	9.327	6.540	5.049	2.121	11.434	8.373	9.302	8.795



AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:

TABLE 20

CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
<u>MATHEMATICS 161</u>	MATH 161	MATH 161	MATH 161	MATH 161	MATH 161	MATH 161	MATH 161	MATH 161	MATH 161
<u>A</u> Number	9	9	9	4	5	9	9	9	9
Avg. St. Sc.	62.33	59.56	62.78	60.00	69.20	61.67	57.89	62.44	54.11
Stand. Dev.	8.185	10.393	7.479	2.828	3.898	6.892	5.861	4.003	8.565
<u>B</u> Number	12	12	12	6	6	12	12	12	12
Avg. St. Sc.	58.67	56.00	57.583	58.83	64.50	58.75	50.67	60.92	52.83
Stand. Dev.	7.889	8.800	9.248	10.303	7.368	7.932	5.565	5.212	7.929
<u>C</u> Number	21	21	21	12	9	21	21	21	21
Avg. St. Sc.	52.67	53.43	55.52	60.33	60.44	56.29	51.38	57.62	51.38
Stand. Dev.	6.491	77.331	6.592	5.532	4.772	5.840	5.678	6.924	9.329
<u>D</u> Number	10	10	10	6	4	10	10	10	10
Avg. St. Sc.	57.90	58.20	58.30	60.83	58.25	56.10	48.80	59.40	51.22
Stand. Dev.	7.355	9.065	5.437	4.215	5.619	8.13	6.069	4.033	11.30
<u>F</u> Number	8	8	8	4	4	8	8	8	7
Avg. St. Sc.	52.38	53.25	48.50	52.75	56.75	54.00	49.88	56.50	43.29
Stand. Dev.	10.609	9.881	10.042	8.460	6.075	11.563	6.424	6.676	3.728

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**MATHEMATICS 181**

**CGP Subtests**

**TABLE 21**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	MATH 181	MATH 181	MATH 181	MATH 181	MATH 181	MATH 181	MATH 181	MATH 181	MATH 181
<b>A</b>	7	7	7	5	2	7	7	7	7
Avg. St. Sc.	60.71	56.71	58.29	59.40	56.00	54.86	51.57	57.00	58.86
Stand. Dev.	6.156	5.964	7.341	1.516	0.000	7.081	5.769	6.582	4.741
<b>B</b>	12	12	12	7	5	12	11	12	11
Avg. St. Sc.	55.33	53.92	51.25	56.14	54.20	55.25	53.09	55.58	53.82
Stand. Dev.	8.855	7.440	9.036	9.856	4.086	8.136	4.989	7.971	9.683
<b>C</b>	14	14	14	11	3	14	14	14	14
Avg. St. Sc.	47.50	47.64	51.93	53.18	54.67	52.07	49.50	57.14	51.50
Stand. Dev.	8.336	9.178	7.405	7.305	1.527	6.182	6.768	5.531	10.754
<b>D</b>	13	13	13	9	4	13	13	13	12
Avg. St. Sc.	55.08	53.23	53.31	55.78	50.25	56.54	48.00	52.92	50.92
Stand. Dev.	11.600	10.802	6.908	5.995	3.774	11.281	10.263	9.894	7.329
<b>E</b>	6	6	6	5	1	6	6	6	6
Avg. St. Sc.	52.33	47.67	49.33	51.20	51.00	49.50	50.83	52.00	46.17
Stand. Dev.	5.316	7.554	8.733	7.259	0.000	12.833	2.401	5.215	8.975

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**NATURAL  
SCIENCE 111**

**CGP Subtests**

**TABLE 22**

	Reading NASC 111	Verbal NASC 111	Sentences NASC 111	Math I NASC 111	Math II NASC 111	Year 2000 NASC 111	Mos. Comp. NASC 111	Letter Groups NASC 111	Academic Mot. NASC 111
<b>A</b>	2	2	2	2	0	2	2	2	2
Avg. St. Sc.	62.00	63.50	60.00	58.50	----	60.00	54.50	57.00	50.50
Stand. Dev.	9.899	12.020	9.899	7.778	----	4.242	0.707	8.485	4.949
<b>B</b>	15	15	15	8	7	15	15	15	13
Avg. St. Sc.	58.07	56.67	55.60	53.50	54.00	58.00	52.93	56.00	54.769
Stand. Dev.	4.463	3.885	5.913	9.561	8.366	7.828	6.595	8.928	13.077
<b>C</b>	21	21	21	15	6	21	21	21	21
Avg. St. Sc.	55.81	55.29	57.62	54.33	59.83	56.57	53.33	58.19	54.14
Stand. Dev.	8.623	8.050	6.028	5.984	9.867	7.723	8.748	7.318	8.945
<b>D</b>	6	6	6	5	1	6	6	6	6
Avg. St. Sc.	45.83	44.00	50.50	47.60	51.00	49.50	55.00	51.50	52.50
Stand. Dev.	5.776	5.621	3.674	4.159	----	3.146	14.212	4.505	8.312
<b>F</b>	5	5	5	5	0	5	5	5	5
Avg. St. Sc.	44.00	44.00	47.80	45.60	----	48.00	49.60	49.40	52.00
Stand. Dev.	3.535	5.873	6.723	5.176	----	3.674	8.961	5.128	12.206



**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**TABLE 23**

**CGP Subtests**

	Reading PSYC 128	Verbal PSYC 128	Sentences PSYC 128	Math I PSYC 128	Math II PSYC 128	Year 2000 PSYC 128	Mos. Comp. PSYC 128	Letter Groups PSYC 128	Academic Mot. PSYC 128
<b>A</b>									
Number									
Avg. St. Sc.									
Stand. Dev.									
<b>B</b>									
Number	7	7	7	5	2	7	7	7	7
Avg. St. Sc.	56.00	57.29	57.00	49.40	62.00	57.00	48.29	52.71	48.57
Stand. Dev.	9.678	8.380	7.937	11.326	14.142	5.744	8.199	7.521	11.341
<b>C</b>									
Number	14	14	14	12	2	14	13	14	13
Avg. St. Sc.	53.86	51.79	50.79	49.17	54.00	50.79	44.92	54.36	49.69
Stand. Dev.	9.630	8.247	9.585	5.765	1.414	8.441	14.320	3.733	7.454
<b>D</b>									
Number	6	6	6	6	0	6	6	6	6
Avg. St. Sc.	38.67	41.33	41.83	39.17	0.00	40.50	43.83	48.67	49.83
Stand. Dev.	5.750	5.573	7.626	4.996	0.000	9.049	8.424	8.824	6.177
<b>F</b>									
Number	1	1	1	0	0	1	1	1	1
Avg. St. Sc.	30.00	30.00	42.00	0.00	0.00	27.00	69.00	45.00	60.00
Stand. Dev.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**TABLE 24**

**CGP Subtests**

	Reading PSYC 201	Verbal PSYC 201	Sentences PSYC 201	Math I PSYC 201	Math II PSYC 201	Year 2000 PSYC 201	Mos. Comp. PSYC 201	Letter Groups PSYC 201	Academic Mot. PSYC 201
<b>A</b>	26	26	26	17	9	26	26	26	26
Avg. St. Sc.	59.04	58.42	58.31	53.94	57.78	55.15	52.19	56.08	52.38
Stand. Dev.	6.427	6.159	5.760	8.264	6.572	6.576	7.776	7.724	11.063
<b>B</b>	11	11	11	7	4	11	11	11	10
Avg. St. Sc.	53.73	54.91	55.27	51.86	56.25	54.00	53.64	56.55	48.40
Stand. Dev.	6.214	8.030	7.457	5.209	6.130	6.434	7.775	7.979	9.991
<b>C</b>	3	3	3	3	0	3	3	3	3
Avg. St. Sc.	50.00	46.33	47.00	55.67	0.00	49.00	50.33	52.33	58.00
Stand. Dev.	5.567	7.637	8.185	4.932	0.000	4.582	2.516	8.144	11.532
<b>D</b>									
Number									
Avg. St. Sc.									
Stand. Dev.									
<b>F</b>									
Number									
Avg. St. Sc.									
Stand. Dev.									

**AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:**

**CGP Subtests**

**TABLE 25**

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	SECR 111	SECR 111	SECR 111	SECR 111	SECR 111	SECR 111	SECR 111	SECR 111	SECR 111
<b>A</b>	10	10	10	7	3	10	10	10	10
Avg. St. Sc.	52.40	54.90	56.40	52.86	63.33	56.70	50.60	54.00	50.40
Stand. Dev.	12.598	10.016	5.966	11.596	8.504	5.907	8.733	7.287	10.844
<b>B</b>	14	14	14	11	3	14	14	14	13
Avg. St. Sc.	45.93	45.64	49.50	45.64	56.00	49.50	47.50	52.43	53.92
Stand. Dev.	8.525	9.787	8.290	6.815	9.165	9.171	7.068	7.387	5.978
<b>C</b>	9	9	9	7	2	9	9	9	9
Avg. St. Sc.	52.11	50.44	49.22	46.00	59.50	48.67	50.56	51.56	49.89
Stand. Dev.	9.293	8.733	11.31	10.878	6.363	13.564	10.584	10.162	10.215
<b>D</b>	2	2	2	1	1	2	2	2	0
Avg. St. Sc.	35.50	37.00	44.50	33.00	43.00	39.00	24.00	32.00	0.00
Stand. Dev.	12.020	1.414	0.707	0.000	0.000	8.485	2.828	5.656	0.000
<b>F</b>									
Number									
Avg. St. Sc.									
Stand. Dev.									

AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:

TABLE 26

CGP Subtest

	Reading SECR 121	Verbal SECR 121	Sentences SECR 121	Math I SECR 121	Math II SECR 121	Year 2000 SECR 121	Mos. Comp. SECR 121	Letter Groups SECR 121	Academic Mot. SECR 121
<u>A</u> Number	8	8	8	5	3	8	8	8	8
Avg. St. Sc.	51.25	51.75	56.00	45.60	61.33	53.63	48.88	56.38	56.13
Stand. Dev.	8.860	8.940	3.625	4.827	5.686	6.501	12.495	10.782	8.806
<u>B</u> Number	7	7	7	5	2	7	7	7	6
Avg. St. Sc.	47.00	47.29	51.71	49.40	58.00	53.57	49.00	54.57	55.17
Stand. Dev.	9.609	9.411	9.877	13.813	8.485	10.875	11.704	3.644	4.833
<u>C</u> Number	4	4	4	4	0	4	4	4	4
Avg. St. Sc.	47.25	47.75	52.75	43.50	0.00	51.00	46.75	51.00	48.00
Stand. Dev.	10.372	14.103	11.842	4.932	0.000	11.747	7.135	3.559	6.164
<u>D</u> Number	3	3	3	2	1	3	3	3	2
Avg. St. Sc.	48.33	44.67	55.67	53.00	49.00	48.00	48.00	54.67	49.50
Stand. Dev.	11.150	11.547	5.131	4.242	0.000	5.196	5.000	2.886	12.020
<u>F</u> Number	1	1	1	1	0	1	1	1	1
Avg. St. Sc.	54.00	51.00	61.00	51.00	0.00	57.00	50.00	58.00	49.00
Stand. Dev.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017

**TABLE 27**

**CGP Subtests**

AVERAGE CGP PERFORMANCE OF STUDENTS BY DIFFERENT GRADES IN:		Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
		SOCI 101	SOCI 101	SOCI 101	SOCI 101	SOCI 101	SOCI 101	SOCI 101	SOCI 101	SOCI 101
<u>A</u>	Number	1	1	1	1	--	1	1	1	1
	Avg. St. Sc.	59.00	63.00	63.00	65.00		54.00	48.00	68.00	49.00
	Stand. Dev.	--	--	--	--	--	--	--	--	--
<u>B</u>	Number	6	6	6	4	2	6	6	6	6
	Avg. St. Sc.	60.33	59.67	61.17	52.75	55.500	60.50	47.833	60.83	45.00
	Stand. Dev.	7.118	6.022	6.047	11.757	0.707	6.685	13.407	8.010	6.957
<u>C</u>	Number	13	13	13	8	5	13	13	13	13
	Avg. St. Sc.	49.54	51.384	50.153	48.625	54.200	51.230	50.85	50.77	47.08
	Stand. Dev.	8.733	6.982	8.070	8.814	2.387	7.084	7.186	10.948	7.193
<u>D</u>	Number	6	6	6	3	3	6	6	6	6
	Avg. St. Sc.	56.67	56.00	54.67	53.67	54.67	53.500	49.166	56.166	47.50
	Stand. Dev.	5.887	3.794	4.885	5.131	6.806	11.912	4.490	8.424	13.619
<u>F</u>	Number									
	Avg. St. Sc.									
	Stand. Dev.									

AVERAGE CGP  
PERFORMANCE OF  
STUDENTS BY  
DIFFERENT GRADES  
IN:

TABLE 28

CGP Subtests

	Reading	Verbal	Sentences	Math I	Math II	Year 2000	Mos. Comp.	Letter Groups	Academic Mot.
	SPAN 101	SPAN 101	SPAN 101	SPAN 101	SPAN 101	SPAN 101	SPAN 101	SPAN 101	SPAN 101
<u>A</u>	6	6	6	2	4	6	6	6	5
Avg. St. Sc.	61.83	60.83	60.83	53.00	64.25	60.00	50.67	59.50	51.40
Stand. Dev.	9.600	8.998	6.462	0.000	6.551	14.071	10.557	3.885	8.619
<u>B</u>	9	9	9	6	3	9	9	9	9
Avg. St. Sc.	56.00	54.33	56.89	55.67	61.67	52.33	49.67	55.33	51.78
Stand. Dev.	10.594	8.062	7.149	8.524	6.506	6.383	5.979	10.641	11.233
<u>C</u>	10	10	10	8	2	10	10	10	10
Avg. St. Sc.	60.10	59.80	56.10	54.38	53.50	57.00	51.20	56.60	46.90
Stand. Dev.	8.40	8.495	8.438	6.116	2.121	9.695	6.356	4.452	10.049
<u>D</u>	3	3	3	3	0	3	3	3	2
Avg. St. Sc.	57.00	54.00	51.33	53.00	0.00	57.00	53.33	50.00	44.00
Stand. Dev.	2.645	7.211	7.505	7.000	0.000	6.000	6.658	5.291	19.798
<u>E</u>	1	1	1	1	0	1	1	1	1
Avg. St. Sc.	68.00	62.00	45.00	53.00	0.00	42.00	54.00	50.00	32.00
Stand. Dev.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010



TABLE 29  
SIGNIFICANCE OF CORRELATION COEFFICIENTS  
BASED ON VARIOUS-SIZED SAMPLES

NUMBER OF CASES IN SAMPLE	MAGNITUDE OF CORRELATION COEFFICIENTS REQUIRED TO BE SIGNIFICANT	
	at .01 level	at .05 level
3 or less	1.00	.997
10.....	.77	.63
20.....	.56	.44
30.....	.46	.36
40.....	.39	.30
50.....	.35	.27
60.....	.33	.25
70.....	.30	.23
80.....	.28	.22
90.....	.27	.21
100.....	.25	.20
200.....	.18	.14
300.....	.15	.11
400.....	.13	.10
500.....	.12	.09
1000.....	.08	.06

TABLE 30  
CORRELATION COEFFICIENTS  
BETWEEN FALL QUARTER GRADES IN COURSES  
AND CGP SUBTESTS

Fall Quarter Grades in:		Reading	Verbal	Sentences	Mathematics I	Mathematics II	Year 2000	Mosaic Comparisons	Letter Groups	Academic Motivation
ACCT 111	N =	.49 * 48	.48 * 48	.14 ns 48	.23 ns 32	.66 * 16	.38 * 48	.23 ns 48	.19 ns 48	.07 ns 46
ARTS 111	N =	.51 ** 26	.56 * 26	.39 ns 26	.61 * 20	.69 ns 6	.63 * 26	.22 ns 26	.49 ** 26	-.04 ns 23
BIOL 101	N =	.43 * 137	.41 * 137	.55 * 137	.21 ** 93	.36 * 44	.26 * 137	.22 ** 137	.40 * 137	.23 ** 134
BUAD 100	N =	.38 * 100	.41 * 100	.27 * 100	.33 * 73	.49 ** 26	.34 * 100	.01 ns 100	.11 ns 100	.06 ns 94
CHEM 111	N =	.20 ns 26	.21 ns 26	.36 ns 26	.16 ns 15	.63 ** 11	.40 ns 26	.11 ns 26	.29 ns 26	-.08 ns 26
DAPR 106	N =	.63 * 27	.52 ** 27	.47 ** 27	.32 ns 15	.87 * 12	.58 * 27	.15 ns 27	.26 ns 27	.12 ns 25
DRFT 111	N =	.17 ns 24	.41 ns 24	.35 ns 24	.50 ns 16	-.46 ns 8	.26 ns 24	.24 ns 23	.19 ns 24	.13 ns 24
ECON 211	N =	.21 ns 19	.12 ns 19	.16 ns 19	.18 ns 14	.90 ns 5	.32 ns 19	.59 ns 19	.20 ns 19	-.32 ns 19
ENGL 101	N =	.29 * 143	.33 * 144	.31 * 144	.36 * 96	.08 ns 47	.33 * 144	.19 ns 143	.18 ns 144	.13 ns 138
ENGL 111	N =	.12 ns 164	.17 ns 164	.33 * 164	.07 ns 111	.46 * 53	.19 ns 164	.14 ns 164	.14 ns 164	.31 * 161
ENGR 100	N =	-.05 ns 24	.09 ns 24	.35 ns 24	.34 ns 12	.32 ns 12	.35 ns 24	-.20 ns 23	-.09 ns 24	-.40 ns 24
HIST 101	N =	.24 ns 53	.27 ** 53	.35 * 53	-.10 ns 31	.50 ** 22	.16 ns 53	.30 ** 53	.03 ns 53	-.02 ns 51
HIST 111	N =	.16 ns 105	.12 ns 105	.25 * 105	.19 ns 76	.36 ns 29	.23 ** 105	.30 * 105	.17 ns 105	.27 * 102
HLTH 100	N =	.42 ns 21	.28 ns 21	.18 ns 21	.13 ns 14	-.38 ns 6	.13 ns 21	.00 ns 21	.25 ns 21	-.11 ns 20
INDT 111	N =	.47 ns 17	.66 ** 17	.61 ** 17	.49 ns 11	.37 ns 6	.43 ns 17	.40 ns 16	.03 ns 17	-.43 ns 17
MATH 101	N =	.41 * 40	.39 * 40	.57 * 40	.56 * 23	.49 ns 17	.59 * 40	.13 ns 40	.46 * 40	-.01 ns 37
MATH 121	N =	-.17 ns 20	.02 ns 20	.03 ns 20	.03 ns 11	.81 * 9	.42 ns 20	.19 ns 19	.19 ns 20	.06 ns 20
MATH 151	N =	.38 * 50	.43 * 50	.63 * 50	.60 * 37	.63 ** 12	.65 * 50	.06 ns 50	.39 * 50	.29 ** 48
MATH 161	N =	.36 * 60	.20 ns 60	.40 * 60	.14 ns 32	.57 * 28	.33 * 60	.31 ** 60	.37 * 60	.33 ** 58
MATH 181	N =	.16 ns 52	.23 ns 52	.21 ns 52	-.04 ns 37	.55 ns 15	.12 ns 52	.07 ns 51	.18 ns 52	.35 * 50
NASC 111	N =	.56 * 49	.54 * 49	.42 * 49	.42 ** 35	.39 ns 14	.43 * 49	.10 ns 48	.29 ns 49	.06 ns 47
PSYC 128	N =	.67 * 28	.68 * 28	.62 * 28	.65 * 23	.50 ns 4	.71 * 28	-.07 ns 27	.36 ns 28	-.12 ns 27
PSYC 201	N =	.49 * 40	.50 * 40	.45 * 40	.37 ns 27	-.34 ns 13	.26 ns 40	-.02 ns 40	.16 ns 40	.04 ns 39
SECR 111	N =	.12 ns 35	.26 ns 35	.30 ns 35	.48 ** 26	.29 ns 9	.39 ** 35	.32 ns 35	.34 ns 35	.13 ns 32
SECR 121	N =	.05 ns 23	.16 ns 23	-.04 ns 23	.00 ns 17	.52 ns 6	.17 ns 23	.06 ns 23	.05 ns 23	.43 ns 21
SOCI 101	N =	.17 ns 26	.24 ns 26	.41 ns 26	.10 ns 16	.37 ns 10	.21 ns 26	.05 ns 26	.29 ns 26	-.05 ns 26
SPAN 101	N =	-.01 ns 29	.07 ns 29	.41 ns 29	.02 ns 20	.54 ns 9	.19 29	-.15 ns 29	.39 ns 29	.29 ns 27

\* Significant at the .01 level of confidence.  
\*\* Significant at the .05 level of confidence.  
ns No significant at either of these levels.



Differential Performances on the CGP  
Between Community College Students:  
Local, State, and National  
Research Report No. 2-72

Director of Institutional Research  
M. Douglas Reed

## INTRODUCTION

Part of the service offered by the College Entrance Examination Board (CEEB) in its Comparative Guidance and Placement (CGP) Program are comparative statistical studies of performances at the local, state, and national levels on academic subtests as well as Interest Index scores. Data are available which allow for comparisons between academic performances of students at Central Virginia Community College, students in the Virginia Community College System, and students in public comprehensive community colleges. These data may be used to measure differential ability at each of these levels.

As part of any college's assessment of how well it is educating the students who do course work there, is an indication of how well they have progressed academically from some starting point. An institution can make more accurate generalizations about how well it has done its job if it knows better the preparation of its entering students upon arrival. After assessing the ability of its graduates, the institution may make one conclusion knowing that its entering students (prior to any collegiate instruction) were lower in ability than either the average for the Virginia Community College System or all the public comprehensive community colleges in the country (which participate in the CGP); it would make a different one upon finding the reverse to be true i.e., that its entering students were higher in ability than the other two groups. It would appear that a more positive effect was generated by the college in the former case rather than in the latter.

Knowing the relative ability of entering students is important for trend analysis of graduates of high schools, and for long-range planning of curricula requiring differential ability levels.

#### THE PROBLEM

Were the students entering Central Virginia Community College in the fall of 1970 and in the fall of 1971 different in ability (as measured by the CGP subtest scores) than either the students in the entire (or overall) Virginia Community College System or those in all public comprehensive community colleges? Further, are the Virginia Community College System students different in ability from those in all public comprehensive community colleges? Additionally, were Central Virginia Community College students entering in 1970 and those entering in 1971 different in ability?

#### PROCEDURE

The typical or average performance (on each CGP subtest) of each of four groups were derived. (See Table I). These performances were then compared by implementing the "t" test of significant differences between averages (arithmetic means). There were six comparisons on eight subtests totalling 48 statistical tests. (See Table II).

Students entering CVCC in the fall of 1971 (group X<sub>1</sub>) were compared to: students entering CVCC in the fall of 1970 (group X<sub>2</sub>) (Comparison A); students entering the several schools in the Virginia Community College System (group X<sub>3</sub>) in the fall of 1970 (Comparison B); and students entering the many schools constituting PCCC: "all public

comprehensive community colleges" (group X<sub>4</sub>) in the fall of 1970 (Comparison C). Students entering Central Virginia Community College in the fall of 1970 (group X<sub>2</sub>) were compared to: students entering the Virginia Community College System (group X<sub>3</sub>) in the fall of 1970 (Comparison D); and students entering PCCC (group X<sub>4</sub>) in the fall of 1970 (Comparison E). Further, students entering the Virginia Community College System (group X<sub>3</sub>) in the fall of 1970 were compared to students entering PCCC (group X<sub>4</sub>) in the fall of 1970 (Comparison F).

## FINDINGS

### Table II.

Of the six comparisons on eight subtests, there were differences found between each of the four groups on the Academic Motivation subtest. No difference was discovered between any of the four groups on the Verbal subtest. In the other six subtests, three of the four groups differentiated themselves from each other.

### Comparison A.

Group X<sub>1</sub> was significantly lower in ability than group X<sub>2</sub> on the Sentences, Math B, Letter Groups, and Academic Motivation subtests. There was no difference found on the other four subtests.

### Comparison B.

Group X<sub>1</sub> was significantly higher in ability than group X<sub>3</sub> on the Reading, Math A, Math B, Year 2000, Letter Groups, and Academic Motivation. The other two subtests were not significantly different.

Comparison C.

Group  $X_1$  was significantly higher in ability than group  $X_4$  on all subtests but Verbal.

Comparison D.

Group  $X_2$  was significantly higher in ability than group  $X_3$  on all subtests but Verbal and Math B.

Comparison E.

Group  $X_2$  was significantly higher in ability than group  $X_4$  on all subtests but Verbal and Math B.

Comparison F.

Group  $X_3$  was significantly higher in ability than group  $X_4$  on all subtests but Verbal and Letter Groups.

Table III gives a visual display of the relationship found in comparisons A-F.

CONCLUSIONS

Since there appears to be a clear difference between community college students at the three levels (local, state, and national) in entering ability, we must conclude that there is some systematic relationship, such as differential ability. This would lead us to careful implications as to the amount of "credit" that the College can take for producing graduates who might appear above average when compared to either the VCCS or PCCC.

It may be, however, that since there are so many more students in the national population (PCCC) than in either the VCCS or locally

(CVCC) what is a significant difference may be more attributable to regression toward the mean.<sup>1</sup> This may also explain the generally better showing for CVCC than for the VCCS.

---

<sup>1</sup>The tendency for scores to move closer to the average, the greater the number in the sample.

**TABLE I**

Groups		Reading	Verbal	Sentences	Math A	Math B	Year 2000	Letter Groups	Academic Motivation
All public comprehensive Community Colleges	Mean	49.49	50.04	49.04	48.31	59.48	49.77	52.37	48.44
	S.D.	10.13	9.80	9.72	9.27	8.55	11.23	9.59	9.04
All Programs, All Students X <sub>4</sub>	Variance	102.62	96.04	94.48	85.93	73.10	126.11	91.97	91.72
	N	42965	42932	42958	37067	5395	42770	42224	38240
Total Virginia Community College System	Mean	50.17	49.91	49.94	48.83	60.29	50.74	52.26	48.08
	S.D.	9.82	9.82	9.59	9.21	9.03	10.88	9.35	8.74
All Programs, All Students X <sub>3</sub>	Variance	96.43	91.97	84.82	81.54	65.93	118.37	87.42	76.39
	N	7608	7606	7607	6733	862	7609	7608	7009
Total Central Virginia Community College	Mean	51.11	49.87	51.23	49.97	59.23	52.207	53.83	50.858
	S.D.	9.16	8.76	8.53	9.30	9.09	9.76	8.50	9.31
All Programs, All Students 1970-71 X <sub>2</sub>	Variance	83.91	76.74	72.76	86.49	82.63	95.26	72.25	86.68
	N	477	477	477	353	124	477	477	404
Total Central Virginia Community College	Mean	50.84	50.08	50.35	49.58	56.83	51.58	52.97	50.15
	S.D.	10.03	9.73	9.41	9.10	8.58	10.57	8.86	9.07
All Programs, All Students 1971-72 X <sub>1</sub>	Variance	100.60	94.67	88.55	82.81	73.62	111.72	78.50	82.26
	N	756	756	756	582	173	756	755	730

		CGP Subtests									
		TABLE II									
Comparisons	Groups	Reading	Verbal	Sentences	Math A	Math B	Year 2000	Letter Groups	Academic Motivation		
		"t"	"t"	"t"	"t"	"t"	"t"	"t"	"t"		
A	X <sub>1</sub> CVCC '71 X <sub>2</sub> CVCC '70	.486 ns	.393 ns	1.695 *	.627 ns	2.297 *	1.609 ns	1.702 *	1.241 *		
B	X <sub>1</sub> CVCC '71 X <sub>3</sub> VGCS	1.756 *	.459 ns	1.145 ns	1.909 *	4.884 *	2.080 *	2.091 *	5.894 *		
C	X <sub>1</sub> CVCC '71 X <sub>4</sub> PCCG	3.670 *	.112 ns	3.795 *	3.341 *	4.000 *	4.665 *	1.843 *	5.050 *		
D	X <sub>2</sub> CVCC '70 X <sub>3</sub> VGCS	2.170 *	.096 ns	3.190 *	2.249 *	1.230 ns	3.169 *	3.896 *	5.858 *		
E	X <sub>2</sub> CVCC '70 X <sub>4</sub> PCCG	3.840 *	.421 ns	5.571 *	3.339 *	.303 ns	5.421 *	3.727 *	5.200 *		
F	X <sub>3</sub> VGCS X <sub>4</sub> PCCG	5.570 *	1.092 ns	7.840 *	4.333 *	2.702 *	7.153 *	.947 ns	3.172 *		

\*: Significant at the .05 level of confidence  
 ns: Not significant at the .05 level of confidence.

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TABLE III

Levels	Reading	Verbal	Sentences	Math A	Math B	Year 2000	Letter Groups	Academic Motivation
A								CVCC '70
B	CVCC '70 CVCC '71		CVCC '70	CVCC '70 CVCC '71		CVCC '70 CVCC '71	CVCC '70	CVCC '71
C	VCCS		CVCC '71 VCCS	VCCS	VCCS PCCG CVCC '70	VCCS	CVCC '71	PCCG
D	PCCG	CVCC '71 VCCS CVCC '70 PCCG	PCCG	PCCG	CVCC '71	PCCG	PCCG VCCS	VCCS

Groups at level A are significantly higher (In the ability measured by each CGP subtest where the group appears) than groups at level B, which are significantly higher than groups at level C, which are significantly higher than groups at level D.

Groups clustered at any one level are not significantly different from each other.