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AUTHOR	Isonio, Steven
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ABSTRACT

To gather data on the level of students' reading skills, California's Golden West College conducted two studies. A longitudinal study examined results for the college's reading assessment test from 1991 to 1995, as well as the role that reading skills played in the success of students who took the assessment test and who were subsequently enrolled in one of nine college-level courses in Fall 1994, Spring 1995, or Fall 1995. This study found that students' average skill level did not change during the 5-year study period; that higher reading test scores were attained by continuing students and students who had taken more English classes in high school; and that there was a significant relationship between reading level and success for six courses, a weak relationship for one course, and no relationship for two courses. In the second study, a reading assessment test was administered to students enrolled in a critical reading skills course in fall 1995 and spring 1996 at the beginning and end of the semesters, while instructors also rated students' level of preparation and students rated the course's difficulty. This study found that of the 19 students who completed both the pre- and post tests, 15 showed gains and 4 showed declines in scores. The study also found the course level seemed to be too difficult for some and too easy for others, suggesting the need for additional course levels. Data tables are included. (BCY)

Reading Skills of Golden West College Students

I. **Reading Skill Levels of GWC Students and Implications for Success in Selected Degree-Applicable Courses**

II. **English 90 (Critical Reading) at GWC: First Year Outcomes and Implications**

Steven Isonio, Ph.D.

Golden West College
Research Office

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Table of Contents

Overview

Literacy skills have become necessary for functioning effectively in our society. Yet, many students enter and even complete their community college education lacking adequate literacy skills. Colleges have the responsibility to provide information about standards and expectations regarding courses in which literacy skills are critical; they must also offer opportunities for strengthening these skills to students who have not yet met necessary standards. This report specifically addresses reading skills of Golden West College students. It contains two sections. The first section describes reading skills of all students assessed at Golden West College between 1991 and 1995. Results indicate that their average reading skill level has not changed during that period, and it is essentially equal to national norms. Additionally, higher reading test scores are typically attained by students for whom English is the native language, continuing students, and students who report having taken more English courses in high school. They are unrelated to the planned unit load, however. Reading scores were found to be strongly related to success in most, but not all, college level courses sampled for this analysis. Therefore, no college-wide "floor" minimum reading level for college level courses is warranted, yet prerequisites or advisories seem appropriate and necessary for some courses which currently do not have them.

The second section of the report describes analyses of the first year of the newly developed Critical Reading course (English 90). Preliminary indications are that most students benefitted from the course. The mean reading test score increased, and there is some suggestion that success and retention increased in college level courses taken the following semester. However, because of relatively low enrollment, the sample size is too small to support definitive conclusions. Nevertheless, there is evidence indicating that the level of the Critical Reading course was too high for some students and too low for others, suggesting that at least one, and perhaps even two additional course levels are necessary to meet student needs. The college would be obligated to offer courses to meet student needs if reading skill prerequisites are implemented for any course, as suggested in the first part of this report.

I. Reading Skill Levels of GWC Students and Implications for Success in Selected Degree-Applicable Courses

General Introduction

Few would disagree that literacy skills are necessary for functioning effectively in contemporary society. Indeed, in a recent report the United States Department of Education *defined* the word "literacy" as the use of "printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential" (US Dept. of Education, 1992). Increasingly in this information age, the American dream remains only a dream for people who lack literacy skills. Neither can the importance of reading and writing abilities in the academic realm be denied. The ability to critically read and comprehend the content of college level textbooks and supplementary written materials is presupposed in most college level courses. This ability is necessary for independent research and information gathering, analyzing and synthesizing, and formulating an informed point of view. As Pascarella (1982, p. 37) long ago observed, poor reading skills "are related to higher attrition and imply that students have to work much harder to succeed in college."

Yet, many students who enter and even complete their community college education lack adequate literacy skills. A recent report by the Committee on Educational Policy for the California State University system (1995) showed that only about one-third of the transfers to the CSU system are prepared for college-level English instruction. Students with low levels of reading skills are at a serious disadvantage in a 4-year college. Like universities, community colleges have the responsibility to provide information about standards and expectations regarding courses in which literacy skills are critical such as with formal advisories or prerequisites; they also must offer students who have not attained these standards opportunities to strengthen their skills.

This report describes some analyses conducted to address the following questions:

1) What are the reading skill levels of Golden West College students? What factors are related to reading skills levels? Have reading skill levels changed over the past four years?

2) Are reading skills associated with success in college level, transferable courses? What other factors are related to success?

3) What are the implications for the consideration of reading skill prerequisites and advisories for certain courses?

Reading Skills of GWC Students: Description

Background and Method.

For each of the past four years, the reading skills of nearly 3,000 Golden West College students have been measured as part of the assessment component of the college's comprehensive matriculation program. In the present study, scores on the APS-Reading test (College Board Assessment and Placement Services for Community Colleges-Reading test) and self-report background data from the GWC Assessment Center database, along with data from the CCCD student enrollment files, were used in a series of analyses related to reading skills and their importance to student success.

The APS-Reading test is a 25-minute test, consisting of thirty-five four-choice items. It contains several reading passages each of which is followed by a set of questions. The passages cover a variety of topics including the natural and social sciences and contemporary life. The questions were designed to measure students' comprehension of the main idea of the passage plus their ability to draw inferences and to extract meaning of vocabulary in context. The test manual asserts that "scores differentiate between students who are adequately prepared for a college's academic work and those who may need developmental work" (College Board, 1990, p. 7). Thus, although the APS test is being "retired" by the College Board and

currently is not used to make placement decisions at GWC, it is a reasonable measure of reading skill for purposes of the current analyses.

Results.

Table 1a contains a cumulative distribution of APS Reading test scores for GWC students. (All Tables and Figures appear in the Appendix.) Descriptive statistics for GWC student APS Reading scores for the years 1991 through 1995 are presented in Table 2. As can be seen, the overall mean score for this five-year period is about 21; the median score is exactly 21. (For comparison purposes, the national norms for the APS Reading Test, which represent more than 30,000 students from nearly 100 colleges, show a mean score on this test of 21.14. Nearly 90% of the students in that national sample were at community colleges. Also, mean APS Reading scores from a sample of six California community colleges that participated in a recent statewide validation effort were all lower than the GWC mean; see Table 1b.) The mean score for GWC students has been stable and only very slightly below the national norm. Although the 1991 sample consisted of 182 students, this number is far below that for the typical year, and therefore the values for students tested in that partial year can probably not be compared with those for subsequent years. Thus, using 1992 as the benchmark year, the mean score has declined by a cumulative number of only 0.39--an average of merely 0.13 (on a 35-item test) per year. The general stability of placement testing scores has also been true for writing, ESL, and math assessment at GWC (Thompson, 1995).

Students assessed via the APS Reading test are a diverse group. Therefore, examining test scores for *sub*groups of students is probably most meaningful. Table 3 shows mean scores by primary (first) language category and testing year. The primary language variable is measured on the standard CAPP assessment form as a dichotomous variable; the question is worded, "Is English your primary language?" Students decide whether they will take the APS tests or the ESL test (CELSA). Nonnative English-speaking students have accounted for fewer than 10% of students who took the APS-Reading test each year since the test was first used at GWC. In the last full year (1995), they were only 5.7% of the sample. Some of these students

might have more appropriately taken the ESL assessment tests, yet others probably had sufficient early English language learning experiences so as to make the APS tests most appropriate for them although their first language was not English. In any case, the trends and relationships concerning reading skills discussed in the following paragraph predominantly involve students for whom English is the primary language.

Over the five-year period the mean scores of both native and nonnative English speakers have been stable. The mean for native English-speaking students was about 21; for the few nonnative speakers of English, the mean score was just below 16. (As noted, most non-native English speaking students opt to take the CELSA test; therefore, they do not contribute to this mean score.) Table 4 presents reading scores by college admission status (no previous college, new to GWC but with some college experience, returning to GWC, continuing at GWC) and testing year. Again, discussion of trends will be based on the full testing years, 1992 through 1995. Continuing students, who comprise between 5-7% of the samples, have consistently attained the highest mean reading test score; students who report no previous college experience, who comprise about three-quarters of the samples, have consistently scored the lowest. Previous instruction in English is another important correlate of reading ability. Most of the students sampled report having taken four years of English in high school, and this variable is directly related to their reading test score (see Table 5). The few (3-5%) students who took one year or less of high school English consistently score lower. Of course, this measure refers to English courses generally and not reading courses specifically. Table 6 shows, about half the students in the sample planned to enroll in 12 or more units during the term following assessment; however, it is interesting to note that there is no consistent relationship between reading test score and number of units planned.

Reading Skill and Performance in a Sample of College Level Courses

Background and Method.

The study also examined the role that reading skills play in success in college level (Associate Degree, Credit) courses at GWC. Title V (Section 55002) outlines the standards which courses must meet to appropriately be considered college level. These include:

a) The grade is based on demonstrated proficiency in subject matter and the ability to demonstrate that proficiency, at least in part, by means of essays

b) The subject matter is treated with a scope and intensity that require students to study independently outside of class time

c) Course work calls for critical thinking and the understanding and application of concepts determined by the curriculum committee to be at the college level

d) The course requires learning skills and a vocabulary that the curriculum committee deems appropriate for a college course

A sample of nine such courses at GWC was selected for this analysis--Chemistry 110, College 100, English 110, Geology 100, History 180, Philosophy 101, Political Science 180, Psychology 100, and Sociology 100. All these courses are degree-applicable (i.e., their credit applies toward the AA Degree). Except for College 100, credit for each course can also transfer to universities in both the CSU and UC systems. College 100 credit transfers to the CSU, but not to the UC system. All of the courses carry three units of credit, except for Chemistry 110 (five units) and Geology 100 (four units). Finally, each of the five breadth areas for the AA Degree (CSU, Liberal Arts), Option II is represented among the courses. Additionally, various sections of most of these courses are offered in the evening as well as during the day. (The courses, with full course titles, brief description, and AA Degree Option-II Areas are listed in Table 7).

Data for three cohorts of students were used: students enrolled in any of the nine courses in either the Fall 1994, Spring 1995, or Fall 1995 semesters. Because the focus was on how reading skills relate to performance, only students who had a record of a recent reading assessment (defined as within 12 months of

the term in which they enrolled in one of the targeted courses) were included in the analyses (see Table 8). Although this approach resulted in the exclusion of many students enrolled in the nine courses, it helped to assure currency of the set of assessment data and therefore maintain its potential relevance for predicting course outcomes.

Results.

As Table 9 shows, there is clearly a relationship between reading skill level and course grade in six of the nine courses included in this analysis (Geology 100, History 180, Philosophy 101, Political Science 180, Psychology 100, and Sociology 100); for one course (English 110), there is a weak positive relationship, and for the remaining two courses (Chemistry 110 and College 100), there is no relationship. The difference between the mean reading test score for successful ('A', 'B', or' C') versus unsuccessful ('D', 'F', 'W') students in a given course was as high as 4.9 (24.20 compared with 19.30 for students in Sociology 100). Finally, as shown in the last column of Table 9, the correlations between reading score and course grade were generally positive and moderately high (greater than .30 in six of the nine courses, each of which was statistically greater than zero).

For each of the sampled courses, students with current reading scores were categorized into five equal-sized groups (20%-ile intervals), and the mean course grade for each of these groups was computed using the standard grade point scale (A=4, B=3, C=2, D=1, F=0). This information is summarized in Figures 1 through 9, which correspond to the nine courses, in alphabetical order. The positive relationship between reading score and course grade received is very evident for the six courses noted above. For Geology 100, History 180, Philosophy 101, Political Science 180, Psychology 100, and Sociology 100, the tendency is for students in the highest 40%, but especially for those in the top 20%, of reading scores to receive better course grades than their lower scoring classmates. Also, those students whose reading scores were in the bottom 20% of the distribution consistently received the poorest grades in the six classes listed above. Specifically, the average grade for this low scoring group in Geology 100 was 1.20 ('D'); for the other courses it was:

History 180--1.75 ('C-'), Philosophy 101--0.92 ('D'), Political Science--1.60 ('C-'), Psychology 100--1.43, ('D+'), Sociology 100--0.99, ('D'). The importance of reading skills for success in these courses is undeniable. Among sampled courses, probably the best example of this fact is Philosophy 101, for which students with the highest 20% of reading scores received a mean grade of 2.29 ('C+'), compared with 1.25 ('D+') for students in the 21-40% group and only 0.92 ('D') for those in the 0-20% group.

The *relative* importance of reading skills for success in the courses was also examined. To do this, a stepwise multiple regression analysis was conducted for each of the nine sampled courses. Here, course performance was operationalized as an interval variable with four values: A=4; B=3; C=2; [D,F or W] = 1. This configuration has the advantage of balancing for known anomalies in grading practices such as the ambiguous interpretation of the 'W' grade (student may have withdrawn due to academic or personal reasons or both), as well as of the 'F' grade (course was completed and effort made, but performance was inadequate, or the student simply failed officially to withdraw from the course when participation stopped). (Rasor and Barr [1993] offer a detailed discussion of the reconfigured grade scale.) For these regression models, predictor variables included APS Reading test scores, APS Writing test scores, high school grade point average, a rating by the student of the importance of college to him/herself, the number of years out of school, and responses to a series of self-report study skills questions concerning adherence to a regular study schedule, note-taking skill, attendance, and test-taking skill. (See Table 10 for the full text of the background and study skills questions.)

Table 11 summarizes the results of these analyses. It depicts the set of predictor variables that entered for each model (i.e., the variables that are significant predictors of success in that course), the order of entry (i.e., a ranking among significant predictors--their *relative* importance), and the resulting multiple correlation coefficient (an index of the overall relationship between the set of predictors and the outcome). Even when weighed against prior academic performance (HS GPA), motivation (importance of college), maturity (years out of school), and study skills, literacy skills were found most critical to success in most of

the courses in the sample. Specifically, reading skill level was the strongest predictor of course outcome for Geology 100, Philosophy 101, Political Science 180, and Psychology 100. It was also found to be an important predictor for Sociology 100. Writing skill was the strongest predictor for History 180 and Sociology 100; it was also an important predictor of grade in Chemistry 110, English 110, Philosophy 101, Political Science 180, and Psychology 100. High school grade point average, an index of past performance in a variety of courses, was the strongest predictor for Chemistry 100 and College 100. As might be expected, the various study skills elements also contributed to the prediction of performance in many of the courses.

General Discussion

Evidence presented in this report shows that, at least for students tested in the Assessment Center, there has *not* been a decline in reading skill levels of Golden West College students in recent years, and the mean APS Reading test score for these students is comparable to the national norms for community college students. In addition, the small number of APS-assessed students for whom English is a second language consistently score below their native English-speaking peers. A moderately strong relationship between the number of English courses taken in high school and reading test score for the entire sample was also noted. Finally, as a group, continuing students have better reading skills than their counterparts, particularly new students.

Perhaps more interesting, reading scores were found to relate significantly to outcomes in most of the courses examined. The analysis showed that much of the variability in grades in nearly all courses in this sample can be accounted for by the sets of measured variables. This fact is especially remarkable since the predictors were measured sometimes over a year before the conclusion of the targeted course. Reading skills, followed by writing skills, were shown to be especially important predictors of course outcomes. Stated

differently, students who enroll in college level courses with higher reading and writing skill levels are more successful in those courses. Those who have poorer reading and writing skills are at a distinct disadvantage.

Although reading skills were shown to be critical for success in several of the courses examined, evidence was mixed, at best, for other courses. While only a small sample of courses was included in this analysis, the results nevertheless imply that an "across the board" minimum "floor" reading level for degree-applicable courses would be inappropriate. Yet, some indication to students about the importance of reading skills (e.g., formal advisories) *is* probably needed for certain courses. This need reinforces the responsibility of the faculty to examine individual courses with respect to the appropriateness and necessity of prerequisites or advisories related to necessary entry skills for college level courses. That examination, which must start with a content review and include empirical research, should for each course determine whether such limitations on enrollment are needed. The results of this study suggest that at least some college level courses at GWC that do not currently have at least advisories regarding necessary reading skills probably should have them.

Of course a huge obstacle to establishing appropriate reading prerequisites and advisories exists at GWC. There is practically no reading program for students needing skill development in that area. The courses ESL 025 and ESL 026 (Reading/Vocabulary, Beginning/Advanced) are not appropriate for native English-speaking students. The English 90 course (Critical Reading) was first offered in the Fall 1995 semester. A single class section of that course was offered in each of the Fall 1995 and Spring 1996 semesters (see the Section II of this report). Although preliminary evidence suggests that students have benefitted from the course, it has predominantly attracted students who have low reading skill levels. Students whose reading skills are *very* low and need substantial remediation and those whose skills are near or at the college level and need and/or want to strengthen their skills have no distinct option. Further, if advisories or prerequisites are set up for appropriate courses, there are grounds for challenging them because a prerequisite course has not been made reasonably available by the college (Title V Section 55201 f. 5). In

short, there is a "Catch-22" of sorts: although reading skill advisories (and possibly prerequisites) appear necessary and appropriate for some college level courses at GWC, there is currently no program of reading courses for students whose skills are inadequate; yet, the need for such a program is likely to appear very low until some reading advisories or prerequisites are established.

Summary and Recommendations

1. APS Reading test score levels for students tested as part of the assessment process at GWC have remained stable for more than four years. The mean score for GWC students is comparable to the mean score in the national norms and generally higher than that for a sample of other California Community Colleges.

2. English was the first language learned for more than 90% of students taking the APS Reading test at GWC. The mean score for these students averaged about five points higher than that for their nonnative English-speaking peers.

3. Continuing students (about 6% of those assessed) have the highest reading scores; new students (about 75% of the sample) have the lowest scores.

4. The reading score is positively related to the number of years of English taken in high school but is unrelated to anticipated unit loads.

5. The role of reading skills was examined for a diverse set of college level courses for three terms. Results showed a moderately strong relationship between reading scores and success in six of nine courses. These relationships remained distinct even when factors such as high-school GPA, study skills, motivation, and the number of years out of school were considered.

6. Since reading skills are strongly related to success in most, but not all, courses, the need to examine individual courses *separately* was emphasized. No college wide "floor" minimum score level for college level courses is appropriate, yet some courses should appropriately have, at least, advisories.

7. In any case, the college is not prepared for reading skills advisories or prerequisites. Currently only one reading course exists and only one section of it is offered each semester. If course reviews suggest that reading skill advisories or prerequisites are needed, the college must be prepared to provide them.

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Appendix

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Appendix (Contents continued)

Table 1a

Cumulative Distribution of Reading Test Scores at Golden West College, 1991-1995

Score Value	Frequency	Percent	Cumulative Percent
1	1	.0	0.0
2	3	.0	0.0
3	6	.1	0.1
4	24	.2	0.3
5	55	.5	0.8
6	81	.7	1.5
7	92	.8	2.4
8	137	1.2	3.6
9	195	1.8	5.3
10	208	1.9	7.2
11	269	2.4	9.6
12	328	3.0	12.6
13	361	3.2	15.8
14	368	3.3	19.1
15	425	3.8	23.0
16	485	4.4	27.3
17	485	4.4	31.7
18	491	4.4	36.1
19	522	4.7	40.8
20	534	4.8	45.6
21	569	5.1	50.7
22	616	5.5	56.3
23	597	5.4	61.7
24	562	5.1	66.7
25	598	5.4	72.1
26	556	5.0	77.1
27	513	4.6	81.7
28	488	4.4	86.1
29	439	4.0	90.1
30	417	3.8	93.8
31	310	2.8	96.6
32	200	1.8	98.4
33	132	1.2	99.6
34	39	.4	99.9
35	7	.1	100.0
Total	11113	100.0	100.0

Summary Statistics:

Mean	20.861	Median	21.000	Mode	22.000
Std dev	6.652	Skewness	-.250	S E Skew	.023

Percentile Range		Corresponding Score range
0 to 20%	=	0 -15
21 to 40%	=	16-19
41 to 60%	=	20-23
61 to 80%	=	24-27
81 to 100%	=	28-35

Table 1b

APS Reading Test Scores at a Sample of California Community Colleges

College	Location	Enrollment	Mean	Median	Standard Deviation
A	S. Calif.	30,000	20.8	21	6.3
B	N. Calif.	14,000	17.7	19	7.8
C	S. Calif.	30,000	19.1	19	7.0
D	N. Calif.	8,000	19.5	20	7.3
E	S. Calif.	15,000	16.4	16	6.7
F	S. Calif.	22,000	18.5	18	7.2

Table 2

APS Reading Scores of GWC Students, By Test Year

Test Year	N	Mean	Standard Deviation
1991	182	22.77	6.3
1992	2,793	21.00	6.7
1993	3,059	20.98	6.5
1994	2,443	20.68	6.8
1995	2,637	20.61	6.7
Total	11,114	20.86	6.7

Table 3

APS Reading Test Scores, By Primary Language Category and Test Year

Test Year	Primary Language	N	% of Total for Year	Mean	Standard Deviation
1991	English	163	92.6	23.12	6.1
	Other	13	7.4	18.54	6.1
1992	English	2524	91.5	21.49	6.6
	Other	233	8.5	15.81	5.9
1993	English	2762	90.9	21.50	6.3
	Other	275	9.1	15.88	5.9
1994	English	2217	91.3	21.22	6.6
	Other	210	8.7	15.23	6.2
1995	English	2480	94.3	20.92	6.6
	Other	149	5.7	15.63	6.3

Table 4

APS Reading Test Scores, By College Admission Status and Test Year

Test Year	Admission Status	Number	% of Total For Year	Mean	Standard Deviation
1991	No previous college	87	47.8	21.92	6.5
	New to GWC	55	30.2	23.93	5.7
	Returning to GWC	18	9.9	23.33	7.4
	Continuing at GWC	22	12.1	22.82	5.5
1992	No previous college	1941	70.0	20.21	6.6
	New to GWC	442	16.0	22.51	6.7
	Returning to GWC	179	6.5	22.83	6.5
	Continuing at GWC	209	7.5	23.54	6.5
1993	No previous college	2140	70.3	20.36	6.4
	New to GWC	479	15.7	22.29	6.6
	Returning to GWC	195	6.4	22.27	6.4
	Continuing at GWC	231	7.6	23.01	6.3
1994	No previous college	1725	70.8	19.97	6.6
	New to GWC	375	15.4	21.56	6.9
	Returning to GWC	179	7.4	23.10	6.3
	Continuing at GWC	157	6.4	23.84	6.3
1995	No previous college	2074	79.0	20.07	6.6
	New to GWC	313	11.9	22.33	6.9
	Returning to GWC	114	4.3	22.64	6.5
	Continuing at GWC	124	4.7	23.79	6.1

Table 5

APS Reading Test Score, By Years of English Completed in High School (Excluding ESL) and Testing Year

Test Year	Years of English in High School	N	% of Total	Mean	Standard Deviation
1991	Less than 1 year	6	3.3	18.33	9.1
	1 year	9	5.0	16.89	7.0
	2 years	27	14.9	23.78	5.6
	3 years	38	21.0	22.95	6.2
	4 years	101	55.8	23.21	5.9
1992	Less than 1 year	43	1.6	18.40	7.2
	1 year	100	3.7	20.05	7.4
	2 years	231	8.6	20.55	7.1
	3 years	462	17.2	20.53	7.0
	4 years	1855	68.9	21.40	6.4
1993	Less than 1 year	48	1.6	16.40	7.2
	1 year	102	3.4	18.90	7.3
	2 years	229	7.6	20.84	7.2
	3 years	604	20.1	20.18	6.4
	4 years	2020	67.3	21.54	6.2
1994	Less than 1 year	38	1.6	17.00	7.3
	1 year	82	3.4	20.09	6.5
	2 years	248	10.3	20.33	7.0
	3 years	909	37.8	20.18	6.6
	4 years	1130	46.9	21.41	6.7
1995	Less than 1 year	35	1.3	15.97	8.0
	1 year	46	1.8	18.87	6.9
	2 years	138	5.3	18.89	7.2
	3 years	814	31.1	20.21	6.6
	4 years	1581	60.5	21.16	6.6

Table 6

APS Reading Test Score, By College Units Planned and Testing Year

Test Year	College Units Planned	N	% of Total	Mean	Standard Deviation
1991	Less than 6 units	30	17.0	22.03	7.2
	6 - 8 units	63	35.8	23.02	5.9
	9 - 11 units	26	14.8	23.88	6.6
	12 or more units	57	32.4	22.68	5.9
1992	Less than 6 units	269	10.5	21.53	6.9
	6 - 8 units	570	22.3	21.29	6.7
	9 - 11 units	340	13.3	20.89	6.5
	12 or more units	1378	53.9	21.20	6.5
1993	Less than 6 units	387	13.5	21.08	7.0
	6 - 8 units	619	21.5	20.91	6.6
	9 - 11 units	383	13.3	21.43	6.1
	12 or more units	1486	51.7	21.25	6.2
1994	Less than 6 units	278	11.9	20.35	7.5
	6 - 8 units	549	23.5	20.46	6.7
	9 - 11 units	396	17.0	20.95	6.4
	12 or more units	1113	47.6	21.04	6.6
1995	Less than 6 units	191	7.5	19.84	7.2
	6 - 8 units	588	23.0	19.86	6.8
	9 - 11 units	286	11.2	21.61	6.7
	12 or more units	1486	58.3	20.98	6.6

Table 7

Courses in the Sample

Department / Number	Course Title	Catalogue Excerpt	AA Degree Option-II Area[1]
Chemistry 110	Introductory Chemistry	Introduction to some basic principles of inorganic, organic and biochemistry	B
College 100	Becoming a Successful Student	Performance oriented course designed to increase success in college	E
English 110	Critical Thinking, Reading, and Writing Through Literature	Introduction to literature and further study of composition	A
Geology 100	Physical Geology	Introductory survey of physical geology	B
History 180	History of Western Civilization	Study of Near Eastern and Europeon cultures from their inception to the sixteenth century	D
Philosophy 101	Introduction to Philosophy	An examination of areas such as the meaning of knowledge, scientific method, religion, ethics, history, politics and metaphysics	C
Political Science 180	Introduction to Government (United States)	Introduction to principles and problems of government emphasizing American political systems	D
Psychology 100	Introductory Psychology	Introduction to the scientific study of behavior	D
Sociology 100	Introduction to Sociology	Social interrelationships and group organization, foundations of society, culture, social differentiation	D

1 A=Communication in the English Language and Critical Thinking, B=Physical universe and its life forms, C=Arts, Literature, Philosophy and Foreign Language D=Social, Political and Economic Institutions, E=Lifelong Understanding and Self-Development

Table 8

Enrollment Term and Corresponding Assessment Period for the Three Cohorts Included in the Sample

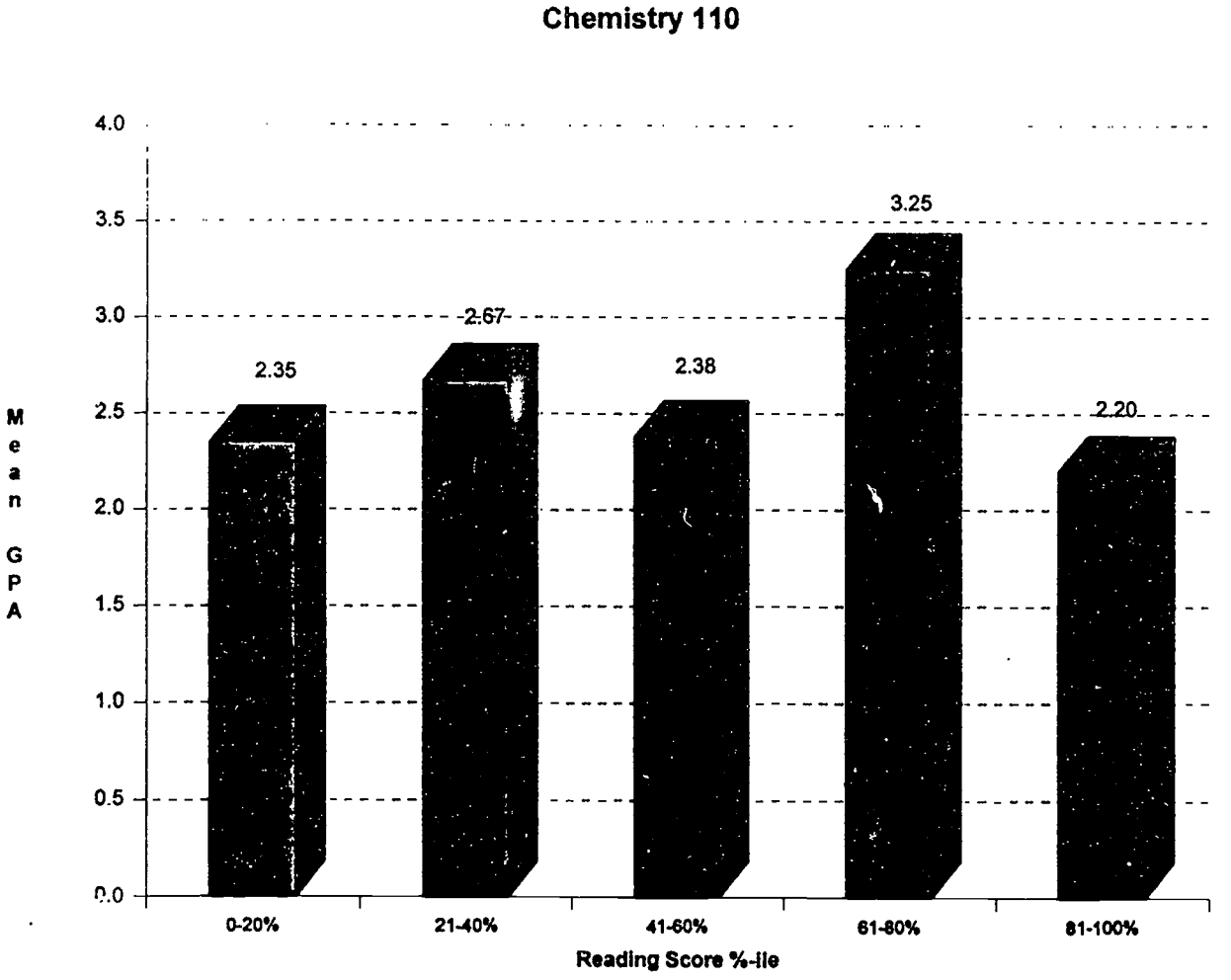
Enrollment Term	Assessment Period
Fall 1994	10/93 through 9/94
Spring 1995	2/94 through 1/95
Fall 1995	10/94 through 9/95

Table 9

Mean APS Reading Test Score, By Course and Course Outcome

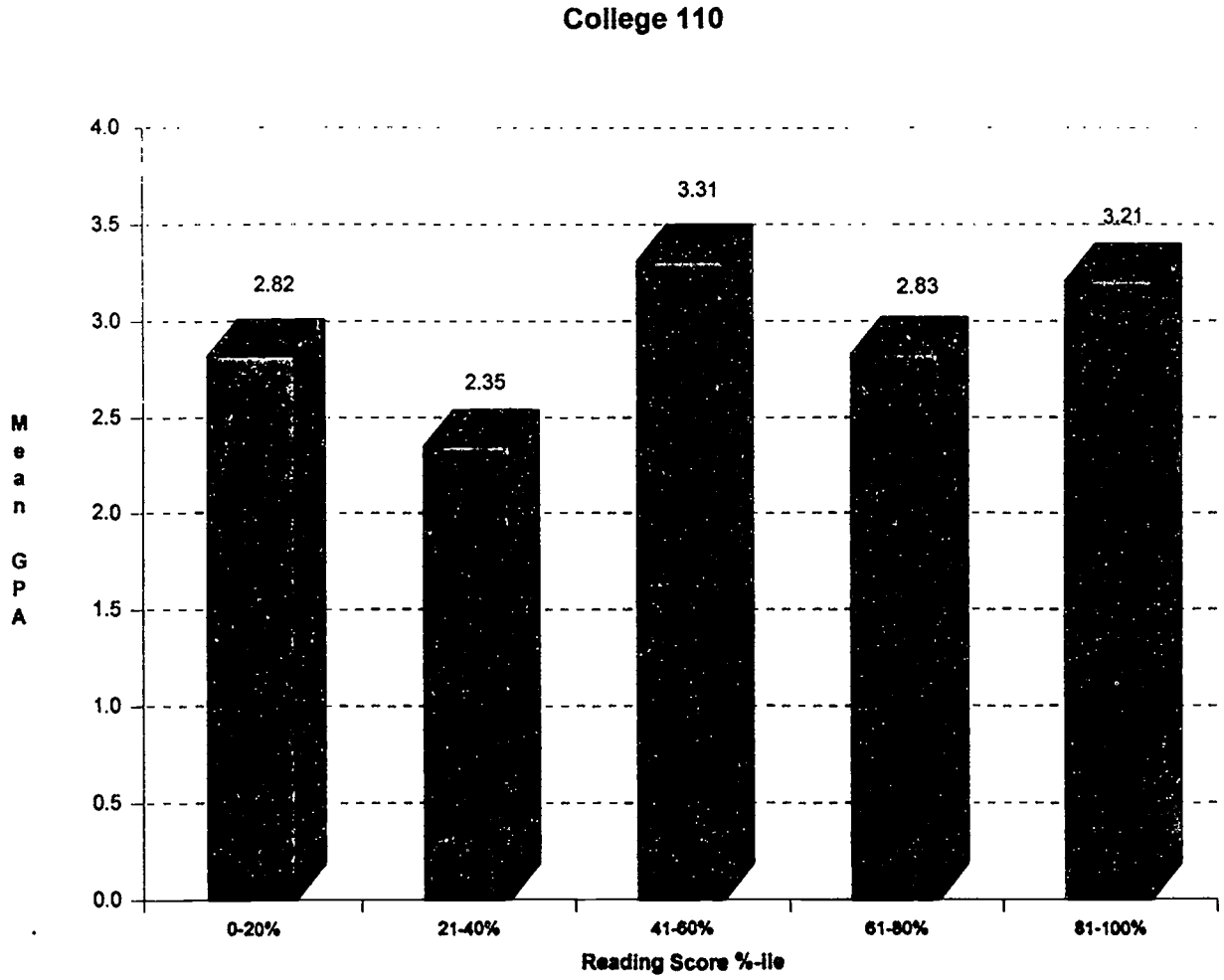
	Successful		Not Successful			
Course	Mean	N	Mean	N	Difference	Correlation, Significance
Chemistry 110	21.05	22	18.05	38	+3.0	-.09, ns
College 100	20.27	85	21.80	173	-1.5	-.06, ns
English 110	24.02	128	23.34	50	+0.7	.14, ns
Geology 100	24.96	54	20.95	20	+4.0	.34, $p < .01$
History 180	24.50	44	21.95	37	+2.6	.39, $p < .01$
Philosophy 101	25.48	150	21.30	187	+4.2	.38, $p < .01$
Political Science 180	23.12	260	20.16	197	+3.0	.33, $p < .01$
Psychology 100	23.07	411	19.66	524	+3.4	.31, $p < .01$
Sociology 100	24.20	198	19.30	321	+4.9	.36, $p < .01$

Figure 1: **Mean Course Grade, By APS Reading Test Score Percentile Group--Chemistry 110**



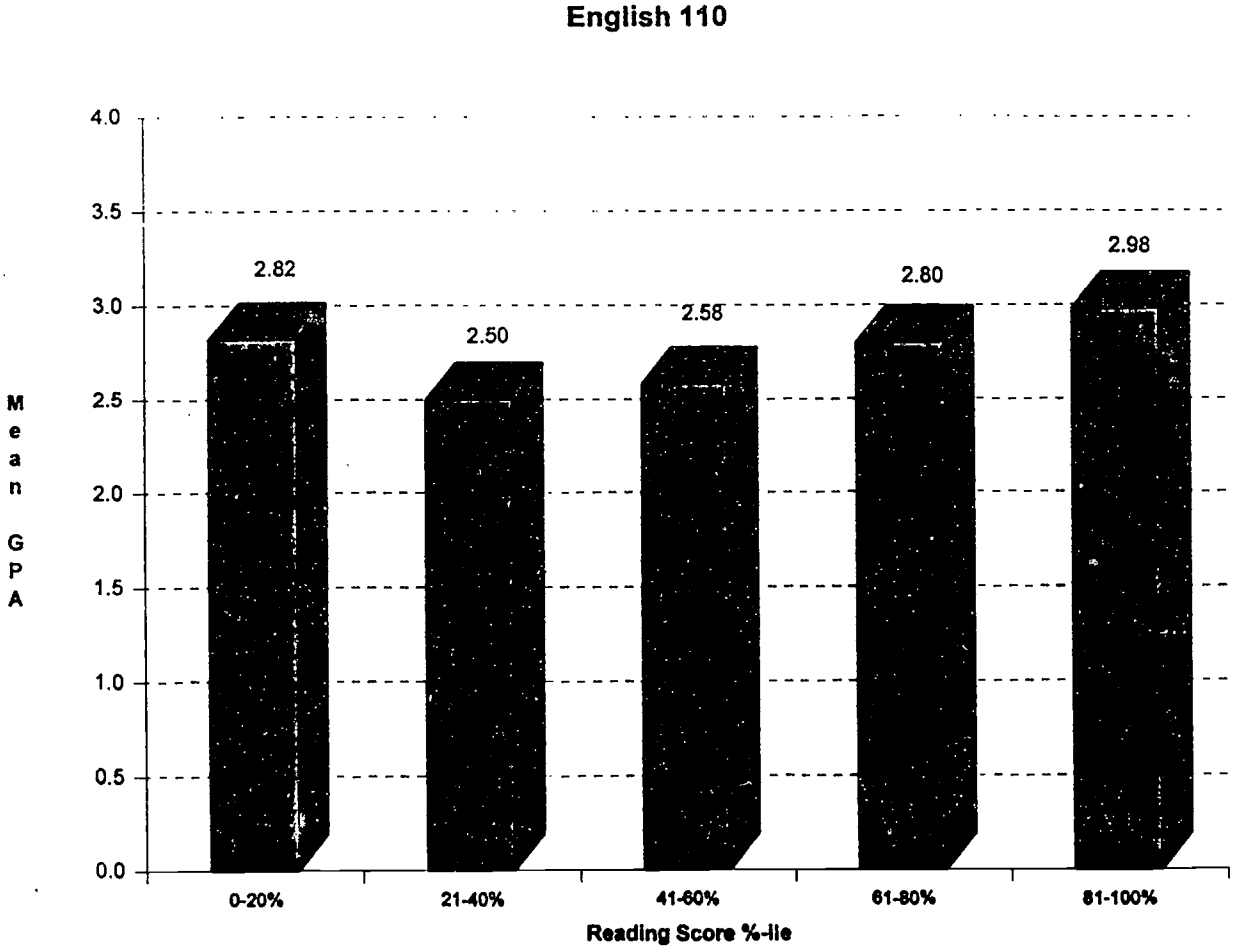
Mean GPA for this course, only students in sample (with Reading score): 2.44 (n=45)
Mean GPA for this course, all students, Fall 1994, Spring 1995, Fall 1995: 2.96 (n=519)

Figure 2: **Mean Course Grade, By APS Reading Test Score Percentile Group--College 110**



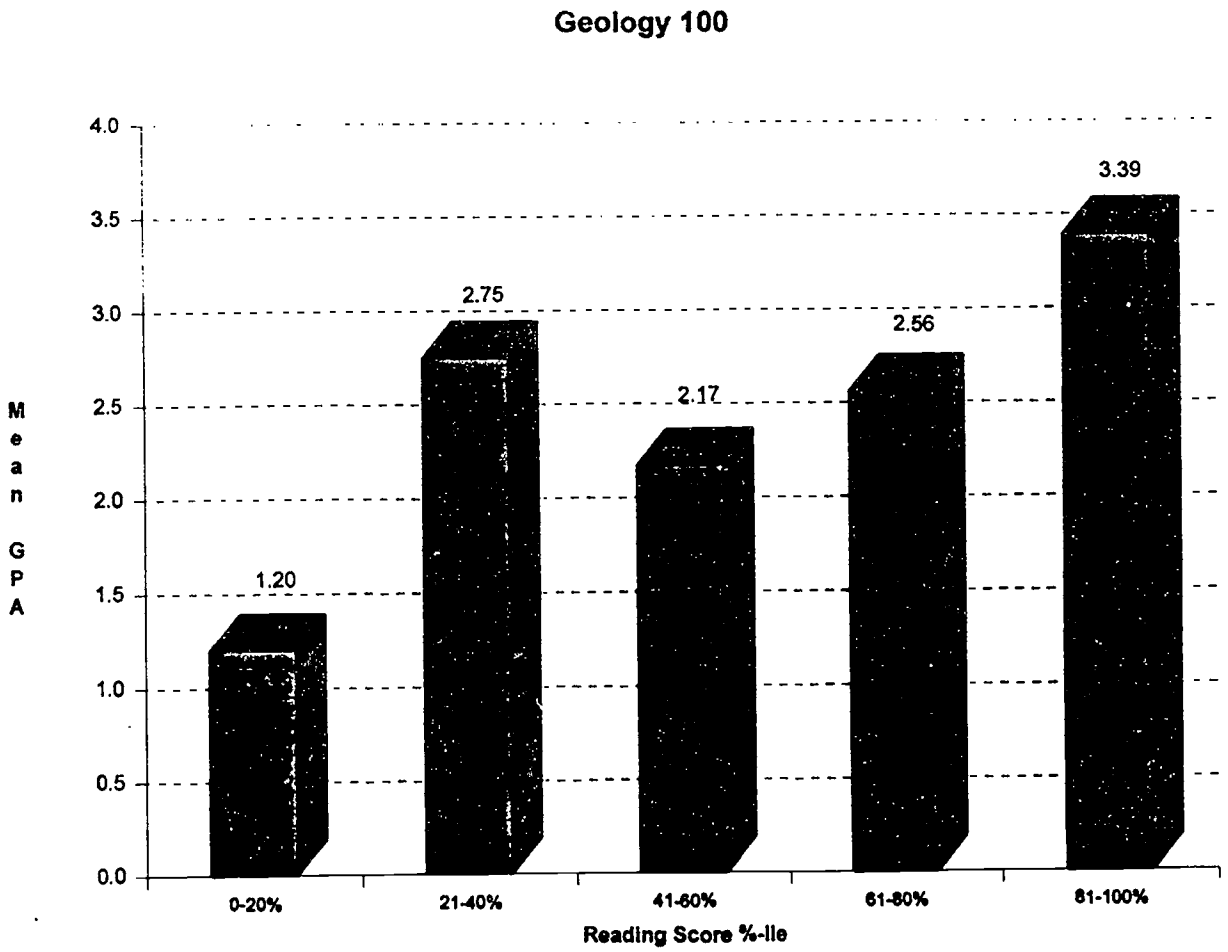
Mean GPA for this course, only students in sample (with Reading score): 2.93 (n=204)
Mean GPA for this course, all students, Fall 1994, Spring 1995, Fall 1995: 3.05 (n=807)

Figure 3: **Mean Course Grade, By APS Reading Test Score Percentile Group--English 110**



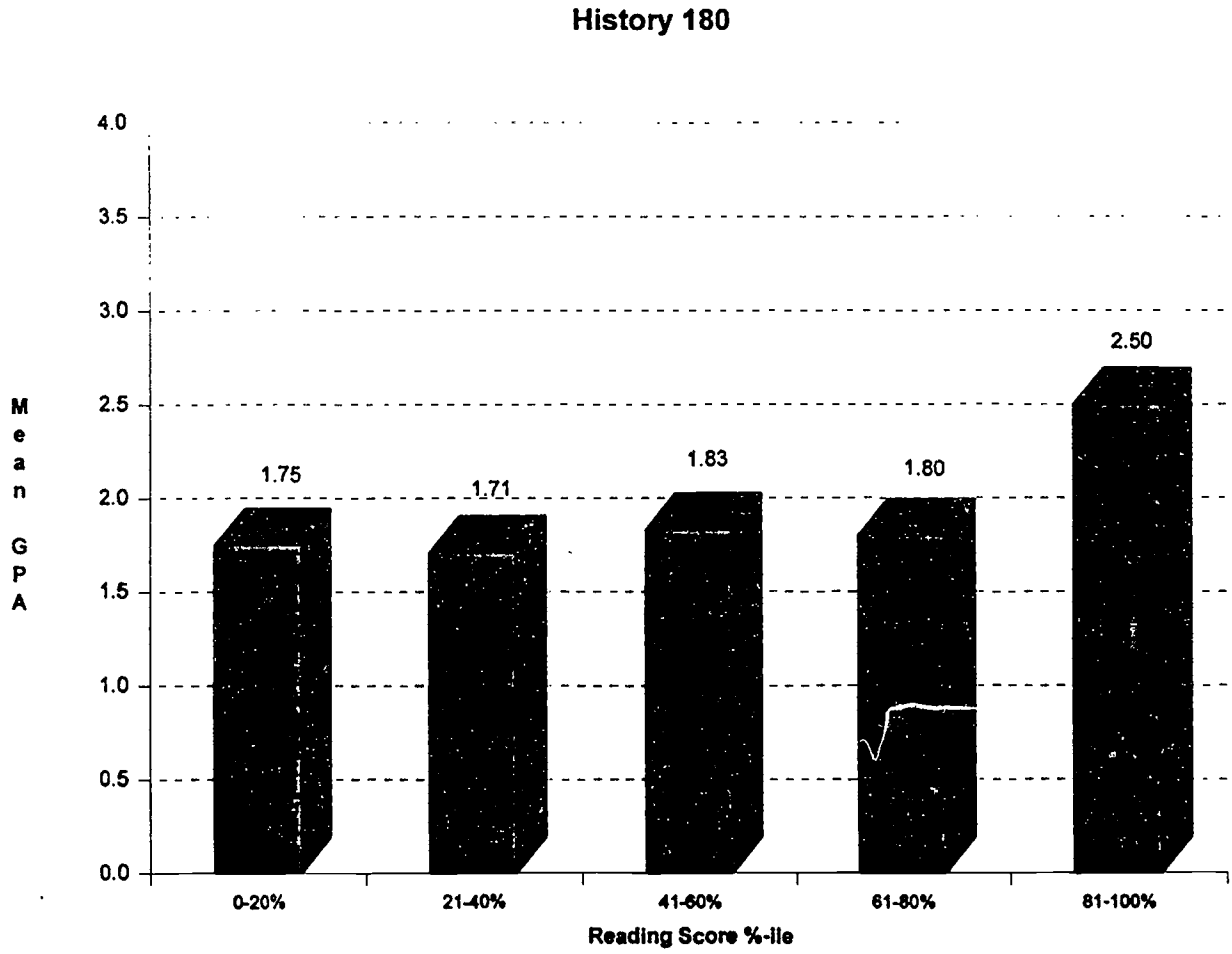
Mean GPA for this course, only students in sample (with Reading score): 2.77 (n=134)
Mean GPA for this course, all students, Fall 1994, Spring 1995, Fall 1995: 2.80 (n=712)

Figure 4: **Mean Course Grade, By APS Reading Test Score Percentile Group--Geology 100**



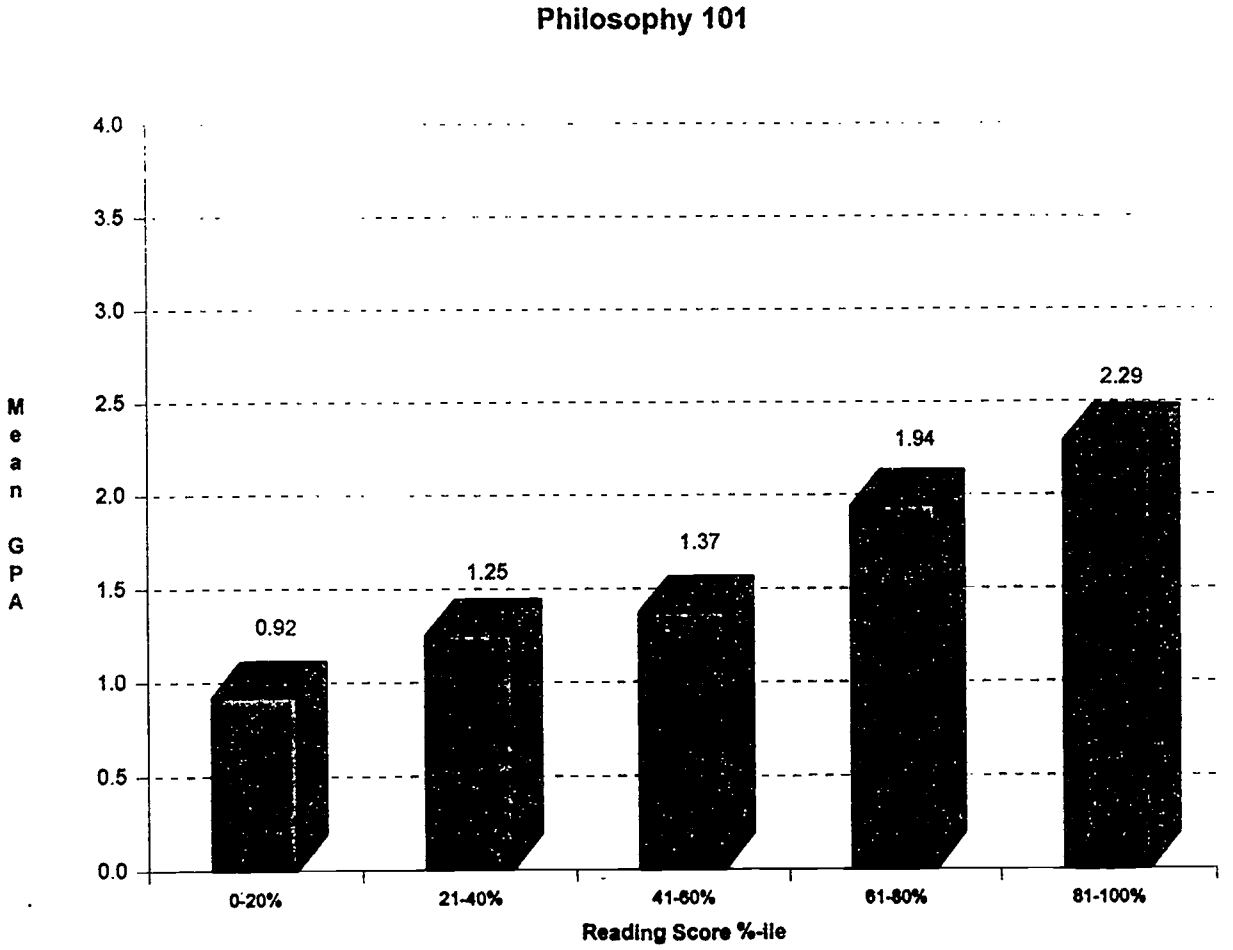
Mean GPA for this course, only students in sample (with Reading score): 2.64 (n=61)
Mean GPA for this course, all students, Fall 1994, Spring 1995, Fall 1995: 2.66 (n=277)

Figure 5: **Mean Course Grade, By APS Reading Test Score Percentile Group--History 180**



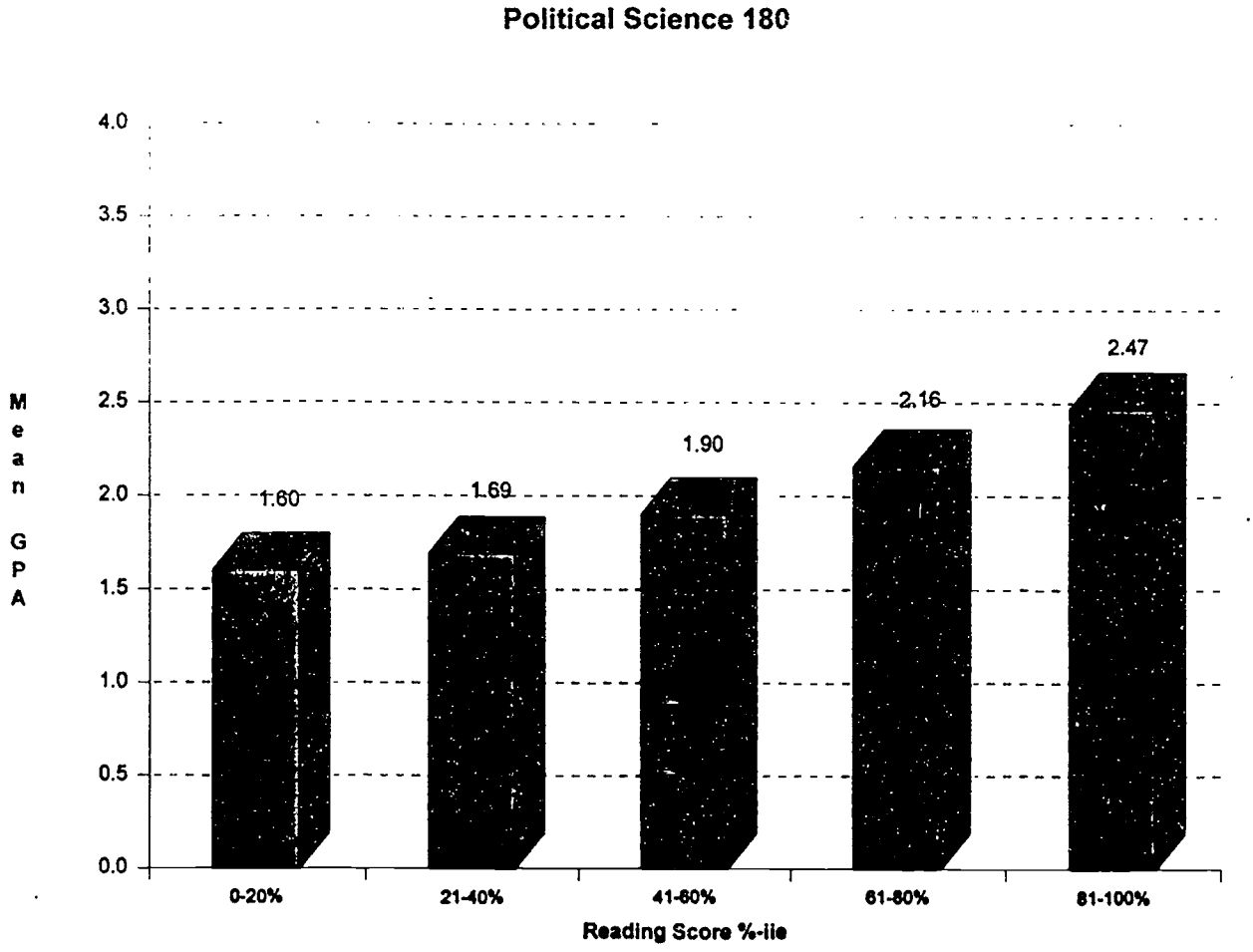
Mean GPA for this course, only students in sample (with Reading score): 2.00 (n=62)
Mean GPA for this course, all students, Fall 1994, Spring 1995, Fall 1995: 2.33 (n=204)

Figure 6: **Mean Course Grade, By APS Reading Test Score Percentile Group--Philosophy 101**



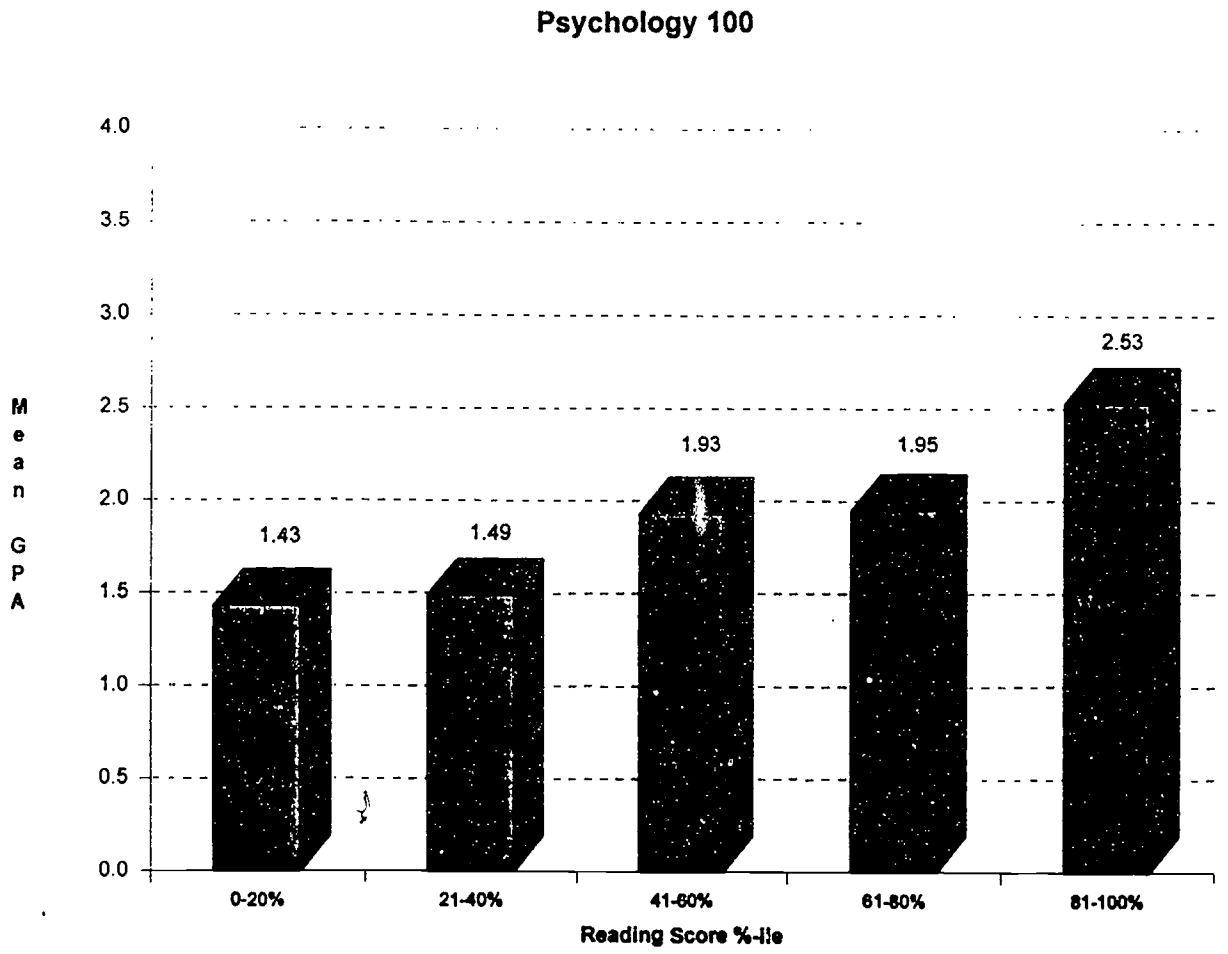
Mean GPA for this course, only students in sample (with Reading score): 1.75 (n=244)
Mean GPA for this course, all students, Fall 1994, Spring 1995, Fall 1995: 1.90 (n=666)

Figure 7: **Mean Course Grade, By APS Reading Test Score Percentile Group--Political Science 180**



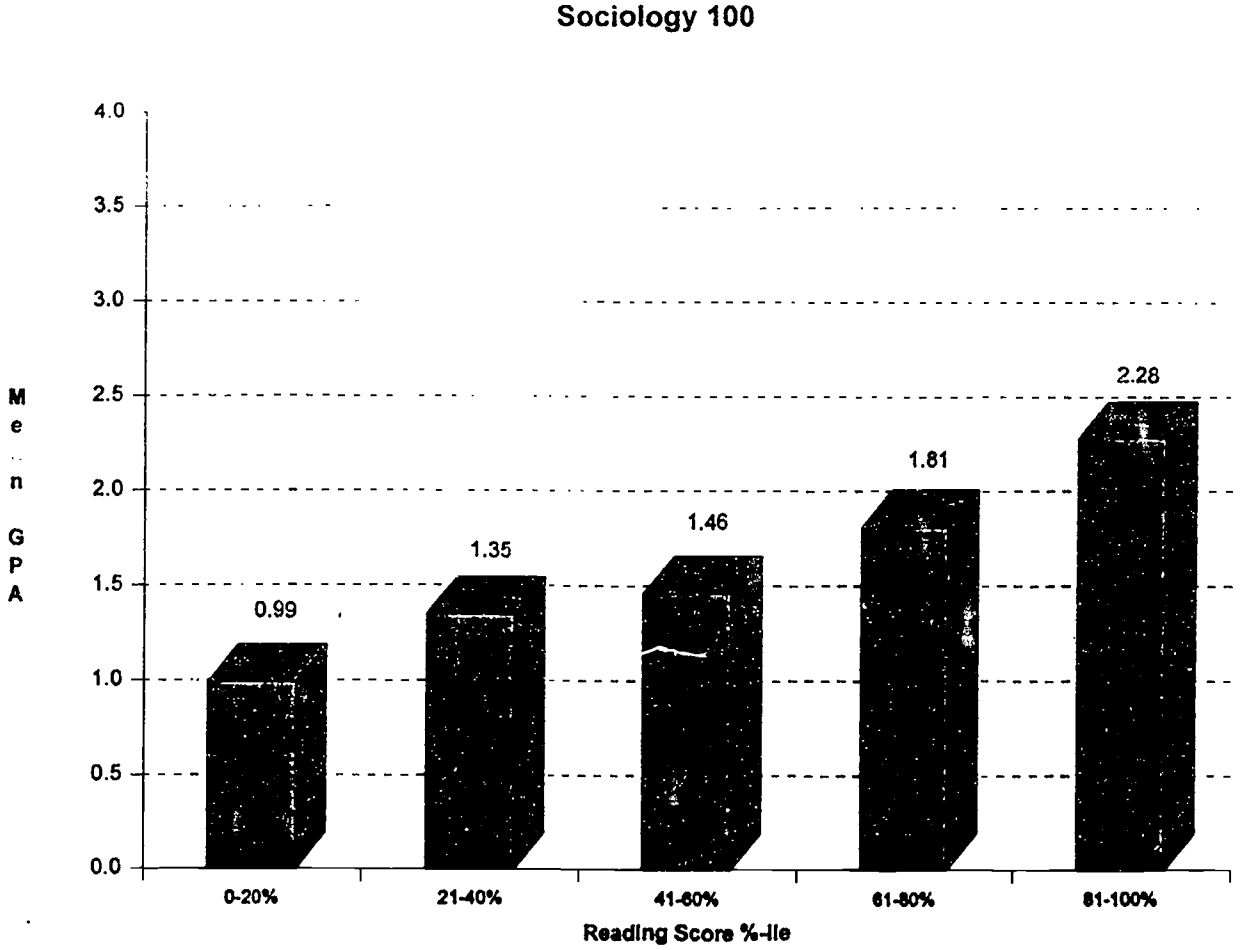
Mean GPA for this course, only students in sample (with Reading score): 2.01 (n=349)
Mean GPA for this course, all students, Fall 1994, Spring 1995, Fall 1995: 2.17 (n=1465)

Figure 8: **Mean Course Grade, By APS Reading Test Score Percentile Group--Psychology 100**



Mean GPA for this course, only students in sample (with Reading score): 1.91 (n=635)
Mean GPA for this course, all students, Fall 1994, Spring 1995, Fall 1995: 1.96 (n=1776)

Figure 9: **Mean Course Grade, By APS Reading Test Score Percentile Group--Sociology 100**



Mean GPA for this course, only students in sample (with Reading score): 1.62 (n=374)
Mean GPA for this course, all students, Fall 1994, Spring 1995, Fall 1995: 1.82 (n=1261)

Table 10

Full Text of Background and Study Skills Questions

Category / Item:
Background Questions:
Is English your primary language?
What is your admission status at the college?
How many years of English have you completed in High School (do not include ESL)?
College units planned next term:
High school grade point average:
Study Skills Questions:
I take class notes that are adequate for my needs.
I am able to set and adhere to a definite study schedule.
I know about and use effective test-taking strategies.
I make regular class attendance a high priority.

Table 11

Variables Entering Stepwise Regression Models, Order of Entry, and Multiple R^2 with Course Grade, For Sampled Courses

ORDER OF ENTRY[1]	Chemistry 110	College 100	English 110	Geology 100	History 180	Philosophy 101	Poli. Sci. 180	Psychology 100	Sociology 100
FIRST:	HS-GPA	HS-GPA	Studying	***Reading***	***Writing***	***Reading***	***Reading***	***Reading***	***Writing***
SECOND:	Notetaking	Studying	Important		Attendance	HS-GPA	HS-GPA	HS-GPA	Studying
THIRD:	***Writing***		***Writing***		Test-taking	***Writing***	Important	Yrs out	***Reading***
FOURTH:					Important	Yrs out	Attendance	Attendance	HS-GPA
FIFTH:						Important	***Writing***	***Writing***	Yrs out
SIXTH:							Studying	Studying	Important
Model R^2 =	.55	.30	.32	.39	.60	.45	.46	.47	.50

Labels for Variables (see text for additional details)

Predictor:		Description:
HS-GPA	=	High School Grade Point Average
Studying	=	Adheres to regular study schedule
Note Taking	=	Take adequate class notes
Important	=	College is important to me
Attendance	=	Regular Attendance is a priority
Test Taking	=	Knowledge of effective Test-taking strategies
Reading	=	APS Reading Test Score
Writing	=	APS Writing Test Score
Yrs Away	=	Years out of school

1 = Order of entry in stepwise regression reflects the relative importance of the predictor for that outcome. That is, for example, for Chemistry 110, HS-GPA is the strongest predictor of grade. Notetaking and writing skills are also important predictors, but less so than HS-GPA.

II. English 90 (Critical Reading) at GWC: First Year Outcomes and Implications

Background and Method.

In response to the recognized need for a course for students who want to improve their reading skills, English 90 (Critical Reading) was developed, approved, and offered to students. One class section of the newly developed course was offered for the first time in the Fall 1995 semester and one was offered in the Spring 1996 semester. One is scheduled for the Fall 1996 semester. This reading course is described in the 1995-96 Golden West College catalogue as:

> *A class designed for students who wish to improve their reading skills to enhance their chances for success in college courses. This course is appropriate for students in ESL 005, English 009, or English 010. Four hours of lecture a week. Credit/No credit only. (4 units).*

As it relates to the document recently developed by the Chancellor's Office Basic Skills Advisory Committee and the Academic Senate for California Community Colleges entitled "Articulation of Math and Language Sequence" (see Figure 1 in the Appendix), this course seems to correspond to the Level II (Developmental Reading--nondegree credit). GWC students can earn credit for the course, but it is not degree-applicable. As the above description indicates, the course is billed as appropriate for advanced ESL students and lower level native English-speaking students.

The study described in this Section of the report was designed to gather information about skills of students who enroll in English 90 and the quantifiable gains made by them during the semester, as well as possible effects of the course on performance in other classes. Therefore, early in both the Fall 1995 and Spring 1996 semesters, students enrolled in the English 90 course were administered the APS Reading test. Again, the test was administered on the dates for the final exam. Forms A and B of the test were used in a counterbalanced fashion to accomplish the pre-test, post-test assessment. Additionally, the instructor provided ratings of student preparedness for the course, and students reported their perception of the

difficulty of the course and said what grade they expected to receive (these rating scales and accompanying directions appear as Figure 2 and Figure 3 in the Appendix).

Results and Discussion.

Preparedness of Students in English 90 Course. As might be expected, students entering the Critical Reading course had relatively low reading skill levels. The mean APS Reading test score for all students assessed in the course during the first weeks of instruction was 11.2. For those who completed the course and took the posttest, the mean score at the start of the semesters was 10.3. As a comparison, recall that both Golden West College norms and national norms have mean scores of about 21. The mean pretest score for the students in English 90 corresponds to about the 8th percentile: over 90% of students tested at GWC had higher reading scores than the average English 90 enrollee.

Students were asked what grade they believed they would receive in the course, based upon their work early in the semester. Most of them were positive. Thirteen students graded themselves either 'A' or 'B'; nine students indicated 'C', and two gave themselves failing grades. The mean reading test scores for these three groups were 17.2, 13.6 and 6.8, respectively; see Table 1a. Students were also asked to indicate how difficult the course was for them. Most reported it was at about the right level of difficulty. As Table 1b shows, three students said it was easy (mean reading test score of 14.3); eighteen said it was about right (mean score of 11.6), and three said it was difficult (mean score of 7.3). Thus, with few exceptions, students felt the course was at about the right level for them and that they were performing adequately in it. They also seemed to have a sense of their reading ability early in the course, and this recognition was directly related to their reading test score.

Is there a score below which students can reliably be classified as unprepared for even *this* course? The answer may be yes. Using the instructor's rating of student preparedness (1 to 5) as the criterion, the distribution of pretest scores for students receiving ratings of either 1 or 2 (unprepared or marginally prepared) was contrasted with that for students with ratings of 4 or 5 (well-prepared; exceptionally well-

prepared). As Table 1c shows, eight students were rated as unprepared by the instructor. Their scores ranged from 1 to 12, with a mean value of 5.4. Six students were given ratings suggesting that they were prepared for the course. They had test scores ranging from 6 to 31, with a mean value of 17.5. (Ten students had a rating of 3; their scores ranged from 5 to 19, with a mean of 10.1.) Both a visual examination of the full distributions and the Multiple Classification Scheme calculation (Cooley & Lohnes, 1971) pointed to a score of 9 as the optimal value for differentiating students who were prepared for the English 90 course from those who were not prepared. This score, or one very close to it, seems to separate students who are ready for this course from those who would best enroll in a lower level reading course if such a course were offered at GWC. This analysis is based on too few cases, however, to support the argument for the score of 9 as a minimum for entry into this course. Clearly, additional data are needed, but the appropriate tentative answer to the question raised above is, yes, students who have *very* low APS reading test scores (single digit APS Reading test scores??) might reasonably be considered unprepared for this course.

Gains Made During the Semester and Implications for Student Success in Other Courses. Nineteen students completed both the pretest and the posttest and therefore were included in the analyses of change in reading skills. Of these, 15 students showed gains in their scores whereas for the remaining 4, scores actually dropped. The average amount number in the pretest was 10.3; for the posttest it was 13.2, representing an average gain of 2.9 (an increase of about 28%--see Table 2). A repeated measures *t*-test indicated that the mean gain was statistically significant [$t\ (18) = -2.61, p < .05$]. Recall that, compared with GWC local norms for the APS, the mean pretest score of 10.3 corresponds to about the 8th percentile. The mean posttest score of 13.2, corresponds to the *17th* percentile. Also, for 15 students showing gains, the average gain was 4.80. In sum, although most students completed the course with relatively low reading test scores, it must be remembered that they began it with *even lower* scores; these gains are certainly meaningful for them, as well as being statistically significant.

As mentioned earlier, the English 90 course was designed for students who wish to improve their reading skills to enhance their chances for success in college courses. Since students' chances for success in college courses are positively related to reading skill level, on the average, in this sense, the course did meet its stated purpose. Even with the gains that were made, however, most students still failed to reach levels typical of students successful in the more literacy-intense college level courses, suggesting that they need further improvement in reading skill to be successful in other courses.

Do students perform better in other courses after having taken English 90? Some very preliminary evidence seems to suggest that tendency. This evidence comes from analyses of enrollment records for Spring 1995, Fall 1995, and Spring 1996 for students who were in English 90 during the Fall 1995 semester. These analyses allowed for comparisons among these students' grades in college level courses before (Spring 1995), concurrent with (Fall 1995), and after having taken English 90 (Spring 1996). Comparisons were also made between students who completed English 90 with a 'CR' grade and their counterparts who received either a 'W' or a 'NC' grade. Finally, to increase comparability, only college level courses were used in these comparisons. Table 3 presents the results of these comparisons. As can be seen, the retention rate for students completing English 90 with a 'CR' was 85.7 in the semester following the course (Spring 1996 semester) compared with 75.9 the semester they took it (Fall 1995). Curiously, students who either withdrew or failed to get credit for English 90 in the of Fall 1995 showed a large *drop* in aggregate retention rate the following semester. In the case of success rate, 'CR' students exhibited a small increase from Fall 1995 to Spring 1996 (from 44.8 to 50.0); their 'NC / W' counterparts showed a slight decrease for that same period (from 42.9 to 38.1). Again, it should be emphasized that these findings are preliminary and are based on the small numbers of students who enrolled in the course in a single semester; therefore, they might reflect uniquenesses of this small data set as much as the effects of successful completion of English 90.

A source of error influencing inferences about the efficacy of the course from these analyses is that the students entered the course with greatly varying reading skill levels. A more decisive test would be one

based on classes of students whose reading skills are more homogeneous and close to the intended level. As discussed earlier, some students were clearly unprepared for the course; others were seemingly overprepared for it. Students with very poor reading skills would probably benefit more from a lower level course; those with better skills might profit more from an advanced course. Such an arrangement would likely yield clearer evidence for the efficacy of the course. Most importantly, students' specific needs regarding their reading skills would be more effectively met.

Summary and Recommendations

1. A newly developed course, Critical Reading (English 90), was first offered in the Fall 1995 semester and then again in the Spring 1996 semester. According the GWC course catalog, the course is "designed for students who wish to improve their reading skills to enhance their chances for success in college courses."

2. There was little demand for the course in either of its first two semesters. More effective strategies for informing appropriate students of the potential benefits of this course are needed. Currently, native English-speaking students take the APS Reading test as a part of assessment. Students scoring below 26 receive a message on their assessment results that although Critical Reading is not required, they should consider enrolling in it.

3. Across the two semesters, only 37 students had either a pre- or posttest score or an instructor rating. Further, only 19 of these students had *both* a pretest score *and* a posttest score. Clearly there is a need to gather additional data to support more reliable conclusions regarding the benefits of the course.

4. Tentatively, though, it does appear that the students who did complete the course benefitted from it. The difference between mean pretest scores and posttest scores was statistically significant and appears to have been meaningful.

5. Another line of evidence suggesting students benefitted from English 90 comes from an examination of their performance in college level courses the semester after enrolling in it. Slight gains in retention and success rates were seen for those students who received a credit grade in the course; students who received a "no credit" grade or who withdrew from the course did not show such gains.

6. It was noted that the English 90 course seems to be at Level II (nondegree credit, developmental) in the Articulation Sequence guide. As such, the course may not be appropriate for students whose skills are lower (Level I--basic reading) or higher (Levels III and IV--introduction to college reading and college reading). This conclusion received support from the data which showed that, based on test scores and instructor ratings, some students were not prepared for this course. Similarly, two students had pretest scores *above* the 50th percentile for GWC norms. Both of them dropped the course, likely suggesting that they felt it was too easy for them and that they would not profit from it.

7. Thus, there seems to be a need for reading courses at least one level below and one level above this one. This student need would become a legal requirement for the college if, as a result of curriculum reviews, certain reading skill levels are identified as appropriate prerequisites/advisories for other courses, as suggested by the findings of the study outlined in Section I of this report.

References

Cooley, W. W. & Lohnes, P. R. (1971). *Multivariate Data Analysis*. New York: Wiley and Sons.

Appendix

ARTICULATION OF MATH AND LANGUAGE SEQUENCE
(FORMERLY KNOWN AS BASIC SKILLS ARTICULATION PROJECT: PHASE 1)

READING

Note: This is an attempt to provide a snapshot of current practice, not describe ideal practice. Level IV is the first associate degree/transfer course; Level III the course one level below that course; Level II course two levels below that course; and Level I the beginning nondegree credit course. Although these courses expect some writing in order to assure solid skills gains. Reading and writing assignments and homework are required for all courses [see Title 5/Section 55002 (a) and (b)]

LEVEL IV **(Associate degree/transfer)** **COLLEGE READING**

Definition: A course designed to emphasize the use of analytical and critical reading/thinking skills with difficult college texts and vocabulary development using college level materials. Instruction may include reading rate flexibility, college study techniques and reading for research.

Entry Expectations: Students should be able to use a variety of vocabulary building skills, including context clues, etymology, word parts, and dictionary; identify main ideas and significant supporting details in content area texts; make inferences and drew conclusions.

LEVEL III **(Associate degree/nontransferable)** **INTRODUCTION TO COLLEGE READING**

Definition: A course designed to strengthen and expand reading and study skills. Concentration on vocabulary extension, complex comprehension skills including identification of types of supporting data, and study/reference skills with content area texts.

Entry Expectations: Students should be able to understand vocabulary in context; apply word analysis strategies (recognize affixes and roots); identify main ideas and key supporting details in different types of paragraphs; make predictions while reading; use a dictionary to determine denotation of words; identify basic paragraph and sentence organizational patterns; summarize readings; and use effective study skills techniques.

LEVEL II **(Nondegree credit)** **DEVELOPMENTAL READING**

Definition: A course designed to develop comprehension skills in identifying and analyzing concrete main ideas and supporting details in different types of paragraphs; identifying basic sentence organizational patterns; vocabulary development; making predictions and summarizing.

Entry Expectations: Students should be able to recognize and recall facts from reading; use a variety of word attack skills including phonics, structural analysis and syllabification; understand the use of homonyms, synonyms, compound words in vocabulary study and identify common spelling endings.

LEVEL I **(Nondegree credit)** **BASIC READING**

Definition: A course designed to develop fundamental reading skills. Technical skills development is with auditory and visual discrimination and combining of sound-symbol relations. Emphasis is on word analysis, development of commonly used vocabulary, spelling skills, comprehension, and basic techniques of study using individualized materials.

Entry Expectations: Students should be able to understand written and fundamental familiarity with receptive and expressive language.

Educational Technology: Instruction supported by educational technology; word processing, computer assisted instruction or CAI, and technical software may be introduced at any and all levels.

Figure 2.

Instructor Rating of Student Preparedness

Directions for Instructor Ratings of Student Preparedness:

Evaluate the preparedness of each student on your roster. This evaluation should be based on observation of students' demonstrated skills/abilities during the first weeks of the term. This would include students' ability to comprehend the material covered in the course that could be manifested in homework assignments, questions asked, and in-class assignments, essays, quizzes, and/or exams. Please do not take into account students' attendance, motivation, effort, or whether they submit their homework; the rating should be based strictly on academic preparation for the course.

Please use the following rating scale to evaluate levels of preparedness. Enter the number next to the student name on the roster:

Rating	Interpretation
1	Unprepared for the course. Probably should be enrolled in a lower course.
2	Marginally prepared for the course.
3	Adequately prepared for the course.
4	Well prepared for the course.
5	Exceptionally well prepared for the course. Possibly could be enrolled in a higher course.

Figure 3.

Student Self-Rating Scale:
English 090

Name: _____ SSN: _____

Estimate the letter grade that you believe you are receiving at this time in this course:

A B C D F CR NC

Which of the following is most true of your placement in this course?

_____ This course is too difficult for me.

_____ This course is a bit difficult for me.

_____ This course is about right for me.

_____ This course is a bit easy for me.

_____ This course is too easy for me.

Table 1a

APS Reading Test Score, by Student Self-Grade

Grade	Mean	Sx	n
D, F, NC	6.78	4.3	9
C, Cr	13.57	4.9	7
A, B	17.17	7.9	6

Table 1b

APS Reading Test Score, by Student Difficulty Rating

Difficulty	Mean	Sx	n
Difficult	7.33	7.5	3
About Right	11.61	7.1	18
Easy	14.33	4.0	3

Table 1c

APS Reading Test Score, by Instructor Rating of Student Preparedness

Preparedness	Pre-test Mean	Sx	n
Not Prepared (1, 2)	5.4	3.7	8
Marginal (3)	10.1	4.2	10
Prepared (4, 5)	17.5	8.4	5

Table 2

Pre- and Post-test Scores of Students in English 90 during 1995-96

Time	N	Mean	Standard Deviation
Pre-Test	19	10.26	5.7
Post-Test	19	13.16	7.7

$t\ (18) = -2.61, p < .05.$

Average gain for all 19 students is 2.90; 15 of the 19 students showed gains.

For students showing gains, the average gain was 4.80.

Table 3

Performance in 100+ Level Courses Before, During, and After Enrollment in English 90 in the Fall 1995 Semester

	Number		Retention Rate[1]		Success Rate[2]	
Term \ English 90 Grade:	CR	NC/W	CR	NC/W	CR	NC/W
Spring 1995 (Before)	19	6	84.2	83.3	42.1	66.7
Fall 1995 (Concurrent)	29	14	75.9	85.7	44.8	42.9
Spring 1996 (After)	28	21	85.7	57.1	50.0	38.1

Notes:
1 = Proportion of students enrolled as of day of record who completed the course, i.e., did not withdraw.
2 = Proportion of students enrolled as of day of record who received a successful grade, i.e., A, B, C, or Credit.

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