

English and Reading COMPASS Score Frequencies and Course Outcomes

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July 9, 2012



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### **Research Questions**

At MCCC, COMPASS test placement is mandatory for students who do not meet the ACT minimum of 18 in English and Reading and 20 in Math, or have 12+ transferable credit hours from an accredited institution. Students who score below 32 on the English test and/or 50 on the Reading test are expected to remediate before entering a developmental course. Recently policy has been modified such that students who score between 32-40 on the English COMPASS placement test and/or 50-60 on the Reading COMPASS test are not permitted to take most 100+ college level credit courses until they complete the developmental course(s) (ENGL-090, RDG-090) they test into. Similarly, effective June 19, 2002, the Department of Education stipulated that individuals without a high school diploma or equivalent have minimum scores of 32 on the English/Writing test, 62 on the Reading test, and 25 on the Pre-Algebra COMPASS test to be eligible for Federal Title IV financial aid <sup>1</sup>. After reading my *Timeliness of Registration & Course Outcome* report, Sandy Kosmyna, Director of the Whitman Center, requested that I tabulate how many students scored below the developmental English and Reading course entry cutoffs, and that I examine the relationship between late enrollment, course outcome, and COMPASS scores to determine whether those who scored below the new requirements were the same students who tended to register late and/or have poor course outcomes.

### **Method**

To examine the aforementioned research questions, data were acquired from Fall 2011, before policies were established that promoted completion of development courses as gateways for registering for college-level credit coursework. All the records ( $N = 547$ ) with a registration date of August 25, 2011 or later were included in the analysis, whereas the “on time” registrations -- those prior to August 25, 2011 -- were randomly sampled ( $N = 670$ ) due to the volume ( $N = 11,000+$ ) and redundancy of the data. Courses with a start date after August 25, 2011 were excluded from analysis. The courses in the final dataset fell into the following divisions: 35.6% HSS, 30.2% SM, 23.3% BUS, 6.1% IT, and 4.8% HS.

**Results**

Of the 1217 records sampled, 35.5% contained COMPASS English scores and 41.8% contained COMPASS Reading scores. Given the college’s placement testing requirements, it is assumed that those with missing COMPASS scores are proficient in that particular area. As depicted in Table 1, of the 432 students (course-wise) who took the COMPASS English test, 7, or 1.6% scored below the cutoff score of 32, leading to remediation. Including students without COMPASS scores, 0.6% of students scored in the remediation range. Just over 3% of the COMPASS takers were eligible to enter ENGL-090, leaving 95.1% of students eligible to register for English Composition 1 (ENGL-151) and other courses.

Of the 509 students assessed by the COMPASS Reading test, 5, or 1% scored in the remediation range (< 50); including individuals without scores, 0.4% percent of students qualified for remediation. In this sample, students either met remediation criteria or tested beyond RDG-090; no one tested into RDG-090. Given that there were only 12 instances of scoring below the cut scores, it became a moot point to inferentially determine whether the students with extremely low COMPASS scores were the same students who registered late and/or had poor course outcomes.

**Table 1**  
**COMPASS Category Frequency**

<b>English</b>	Frequency	Percent	Testers Only
1-31	7	.6	1.6
32-40	14	1.2	3.2
41-100	411	33.8	95.1
COMPASS Total	432	35.5	100.0
No Score	785	64.5	
Total	1217	100.0	
<b>Reading</b>	Frequency	Percent	Testers Only
1-49	5	.4	1.0
61-100	504	41.4	99.0
COMPASS Total	509	41.8	100.0
No Score	708	58.2	
Total	1217	100.0	

**Part II: All Fall 2011 Students****Method**

While previously a random sample of on-time enrollers had been selected to compare with outcomes of late enrollers, I proceeded to examine all ( $N = 4,355$ ) the Fall 2011 student records to examine the frequency distribution of Reading and English COMPASS scores. Both new and returning students were included. Each student's data were only recorded once, whereas previously the timeliness of registration data were examined at the course record level, meaning a student could have been sampled twice (e.g. for a math course and business course). Each student course record with a grade of H or W and Term GPA of 0.0 had its Term GPA treated as missing data to avoid equating developmental credit completion or course withdrawal with course failure, which would bias a GPA analysis.

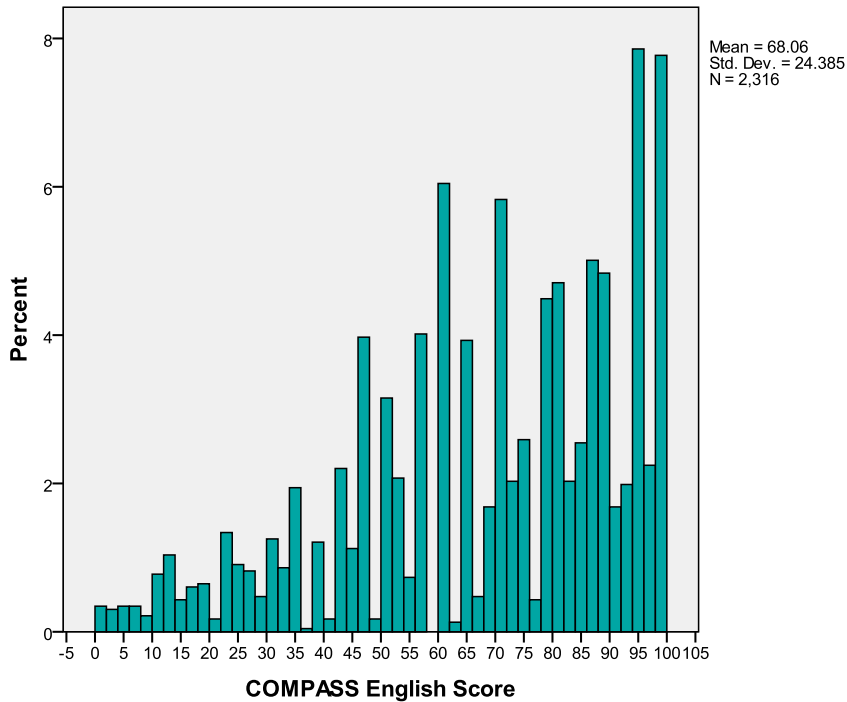
**Frequency Distribution Results**

Of the 4,355 enrollees, 5.3% qualified for English remediation, 2.2% tested into developmental English, and 92.5% were eligible to take ENGL-151 and other college level courses. Counting English COMPASS testers only, 10% required remediation, 4.1% placed into developmental English, and 85.9% were permitted to take college level courses. The results are displayed in Table 2. Figure 1 also illustrates the frequency distribution of scores.

**Table 2****Fall 2011 English COMPASS Category Frequency**

	Frequency	Percent	Testers Only
1-31	232	5.3	10.0
32-40	94	2.2	4.1
41-100	1990	45.7	85.9
COMPASS Total	2316	53.2	100.0
No Test Score	2039	46.8	
Total	4355	100.0	

**Figure 1**  
**Frequency Distribution of COMPASS English Scores**

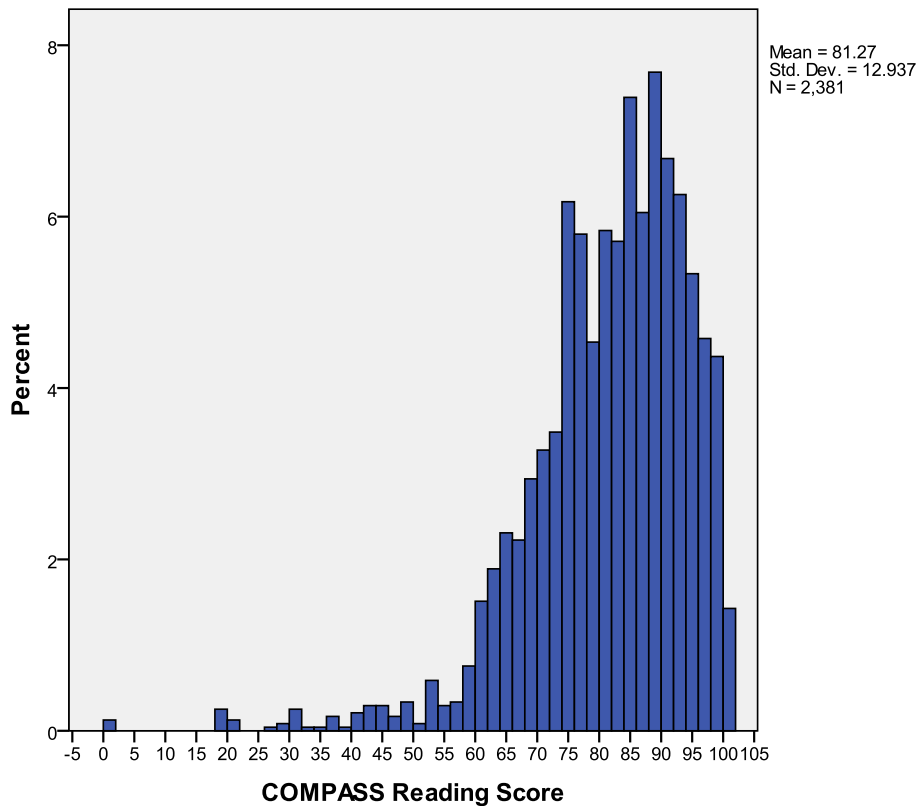


Similarly, regarding COMPASS Reading scores, 1.4% of students qualified for reading remediation, 1.2% tested into developmental reading, and 97.4% could take college level courses. Examining reading COMPASS testers only, 2.5% required remediation, 2.3% placed into developmental reading, and 95.3% were eligible to take college level courses. The results are displayed in Table 3 and Figure 2. The low frequency of scores in the course restriction range is more pronounced for the Reading test than the English test.

**Table 3**  
**Fall 2011 Reading COMPASS Category Frequency**

	Frequency	Percent	Testers Only
1-49	59	1.4	2.5
50-60	54	1.2	2.3
61-100	2268	52.1	95.3
COMPASS Total	2381	54.7	100.0
No Test Score	1974	45.3	
Total	4355	100.0	

**Figure 2**  
**Frequency Distribution of COMPASS Reading Scores**



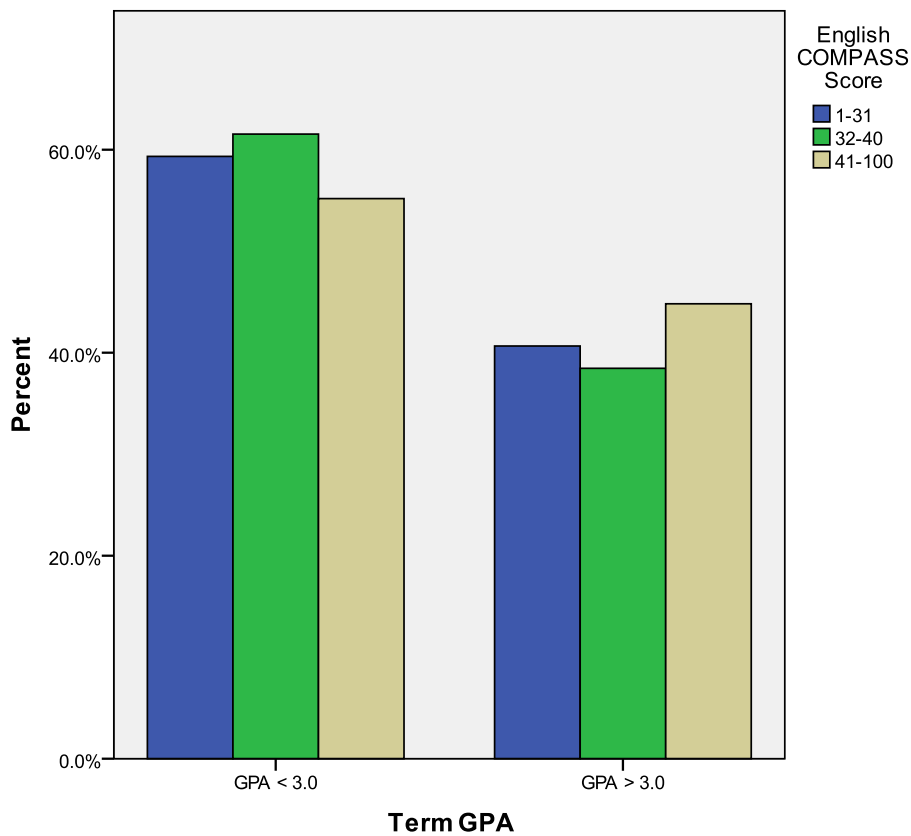
### GPA Outcomes of COMPASS Scorers

A two-way contingency table analysis was conducted to determine whether students with higher COMPASS scores received better grades during the Fall 2011 term than those who were categorized into lower-scoring categories. Given the negative skew of the Term GPA distribution, data were analyzed as a function of the percentage of students in each COMPASS group who scored above vs. below the GPA median of 3.0, as opposed to reporting each group's mean GPA. Table 4 and Figure 3 illustrate that 4% more students in the highest COMPASS English scorer category (41-100) had Term GPAs above the 3.0 median than the English remediation category; however, the analysis assessing differences in GPAs between groups was not statistically significant, Pearson  $\chi^2(2, N = 1833) = 2.2, p = .33$ . This means we cannot trust that the reported group differences are reliable, meaning the results may have been produced by chance rather than representative of a phenomenon occurring in other semesters.

**Table 4**  
**Percentage of students Above vs. Below the Median Term GPA, and Mean Rank, Across English COMPASS Groups**

			Median GPA		Total	Mean Rank
			< 3.0	> 3.0		
English COMPASS Score Groups	1-31	Count	108	74	182	
			59.3%	40.7%	100.0%	1014
	32-40	Count	48	30	78	
			61.5%	38.5%	100.0%	1030
	41-100	Count	868	705	1573	
			55.2%	44.8%	100.0%	1077
Total		Frequency	1024	809	1833	
			55.9%	44.1%	100.0%	

**Figure 3**  
**Percentage of Students Above vs. Below the Median Term GPA Across English COMPASS Groups**



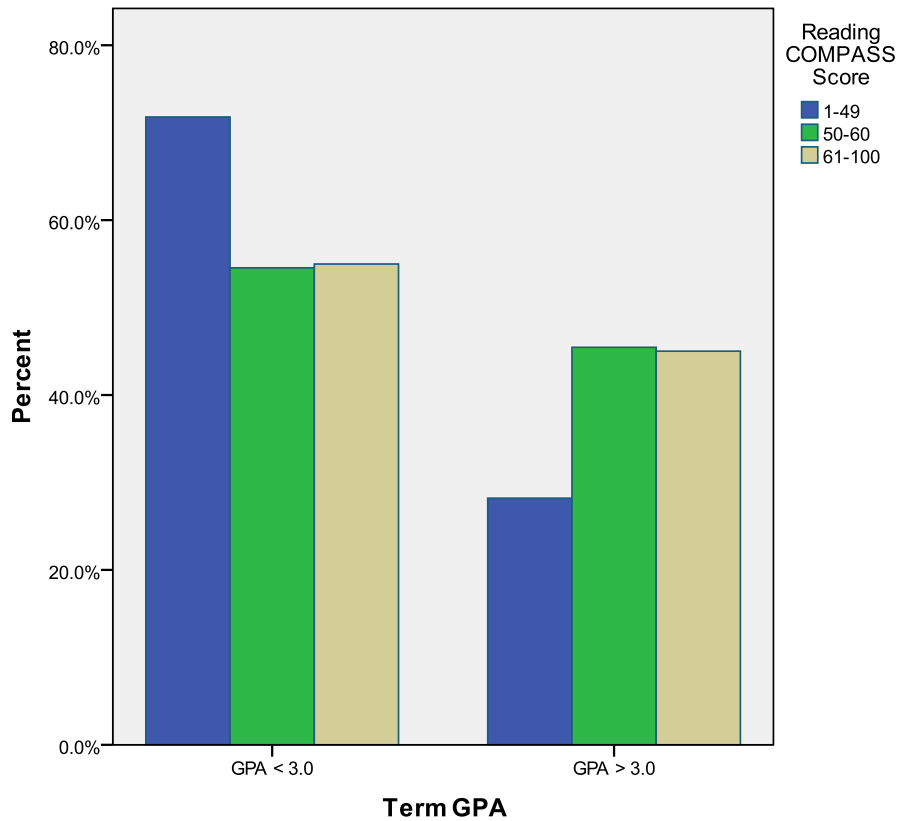
Turning to Reading scorers, 17% percent more students who tested as having developmental or college-level reading scores had GPAs above 3.0, compared to remedial scorers. Results are illustrated in Table 5 and Figure 4. Initially the contingency table analysis was not statistically significant, Pearson  $\chi^2(2, N = 1889) = 4.4, p = .11$ ; however upon recategorizing the groups as 1-49 vs. 50-100, statistically significant group differences in GPA emerged, Pearson  $\chi^2(1, N = 1889) = 4.4, p < .05$ , Kendall's tau-b = .048.

**Table 5**  
**Percentage of Students Above vs. Below the Median Term GPA, and Mean Rank, Across Reading COMPASS Groups**

			Median GPA		Total	Mean Rank
			< 3.0	> 3.0		
Reading COMPASS Score Groups	1-49	Count	28 71.8%	11 28.2%	39 100.0%	944
	50-60	Count	24 54.5%	20 45.5%	44 100.0%	1066
	61-100	Count	993 55.0%	813 45.0%	1806 100.0%	1111
Total		Count	1045 55.3%	844 44.7%	1889 100.0%	



**Figure 4**  
**Percentage of Students Above vs. Below the Median Term GPA Across Reading COMPASS**  
**Groups**



A second way to conceptualize GPA differences between groups of scorers is to rank all reading COMPASS test takers in order of lowest GPA scorer to highest scorer, and then tabulate each group's mean student GPA ranking using the Kruskal-Wallis test. Groups with higher mean rank values are comprised of students with higher GPAs. As illustrated in Table 5, while higher-scoring COMPASS reading categories had a higher mean rank GPA, meaning that the average student who scored between 61-100 was ranked 1111 out of a possible 1889 (highest GPA) students, the test was not statistically significant,  $\chi^2(2, N = 2211) = 3.6, p = .17$ . The analysis of English COMPASS groups and their GPA mean rank differences was also statistically non-significant,  $\chi^2(2, N = 2136) = 2.4, p = .31$ .

### English by Reading Category Results

To gain better understanding of the score categories, I proceeded to examine whether English and Reading test placement were correlated. A Spearman's rho correlation coefficient demonstrated a statistically significant relationship,  $r(2173) = .41, p < .001$ . Those who scored high on one test also tended to score high on the other test. The strength of this relationship was moderate, with English placement accounting for 16.4% of the variance in Reading placement (and vice versa). To display the information in a more concrete manner, the percentage of students within each Reading group who scored in the lowest English score category (1-32) is as follows:

<u>1-49</u>	<u>50-60</u>	<u>61-100</u>
69.6%	52.8%	7.7%

### Conclusion

In the sample of late enrollers vs. on-time enrollers, virtually no one scored in the remediation score range, initially indicating that the cut scores may be too low to effectively identify students who are underprepared and in need of additional assistance before registering for courses. However, given that on-time enrollers were sampled, and some disciplines had late-start courses that were filtered out of the analysis to avoid registration timeliness confounds, I proceeded to analyze the entire Fall 2011 population to produce a more complete picture of COMPASS score distributions. Of the 4355 enrollees, 5.3% qualified for English remediation, 2.2% tested into developmental English, and 92.5% were eligible to take ENGL-151 and other college level courses. Regarding reading placement, 1.4% of students qualified for reading remediation, 1.2% tested into developmental reading, and 97.4% could take college level courses. If access is an issue of concern, results indicate that a large percentage of students are unaffected by these particular policies. Grade-wise, 4% more students in the highest COMPASS English scorer category (41-100) had Term GPAs above the 3.0 median than the English remediation category, although this result was not statistically significant. More notable was the finding that 17% more students who tested as meeting developmental or college-level reading criteria had GPAs above 3.0 compared to remedial scorers.

There are limitations to this study, which could be implicated in the non-significant differences in grades between English COMPASS score groups. Given that students in all stages of their education at MCCC were included in the GPA analysis, it is possible that those with COMPASS scores in the cutoff range who were struggling or unsuccessful in their initial courses dropped out in prior semesters, leaving a data set full of returning students who were at least moderately successful academically. We would also expect that returning students who attained low COMPASS scores a semester(s) ago may have subsequently completed developmental writing and/or reading and improved their abilities, theoretically leading to at least a mild GPA gap closure between themselves and higher COMPASS scorers. Additional research could avoid the aforementioned confounds by investigating the performance outcomes of students in developmental courses and ENGL-151 as a function of COMPASS score, to determine whether the minimum course entry scores are conducive to student success. Readers who are further interested in the relationship between English and Reading scores may want to read my report titled, *Are COMPASS Reading Score & Developmental Writing Performance Related?*

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1. As of July 1, 2012, new Ability to Benefits students can no longer use test scores to become eligible for these federal funds: <http://www.act.org/compass/advant/atb.html>.