

Are COMPASS Reading Score & Developmental Writing Performance Related?

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Research Question

Dr. Yackee requested that I examine whether a relationship exists between developmental writing course performance (ENGL-090) and COMPASS reading score in students who scored below a 32 on the COMPASS writing placement test.

Method & Descriptive Statistics

Data were analyzed from five semesters, Fall 2009 to Fall 2011. Two students had a recorded COMPASS reading score of 1, so those outliers were excluded from analysis. There were 443 students who scored below a 32 on the COMPASS writing test, completed the COMPASS reading placement exam, and enrolled in developmental writing; 44.7% (198) of these students received an H, 40.2% (178) a U, and 15.1% (67) withdrew. The reading test mean was 64.3. The 25th, 50th, and 75th percentile reading scores were 54, 65, and 75, respectively. To provide context for these scores, the mean reading score for students with writing scores greater than 31 was 74.2

Inferential Statistics

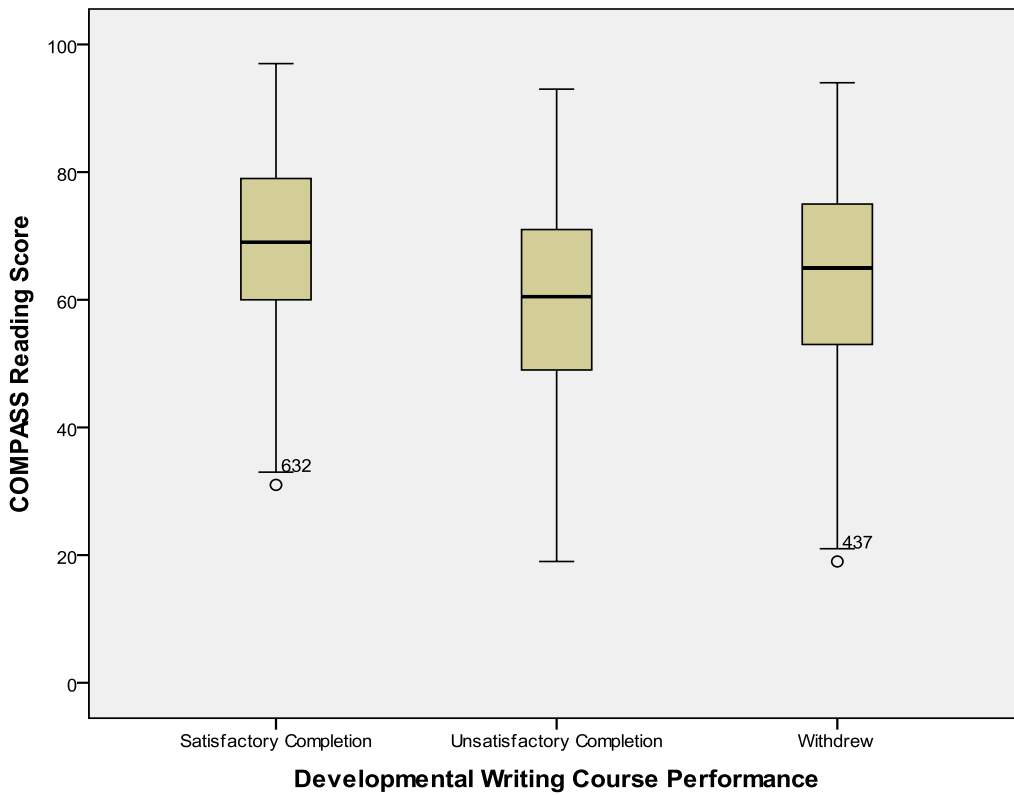
A one-way analysis of covariance (ANCOVA) was conducted using data from students who scored below a 32 on the writing placement test. The grouping variable, developmental writing course outcome, included the following three groups: H, U, and W. The dependent variable was COMPASS reading score, and the covariate was COMPASS writing score, given the plausibility that students who enter a writing course more prepared are more apt to have a positive outcome. The ANCOVA was statistically significant $F(2, 432) = 11.68$, $MSE = 200.08$, $p < .001$. On average, students who passed ENGL-090 had higher reading scores ($M = 68.8$) than those who withdrew ($M = 62.9$), who in turn outperformed those who failed the course ($M = 60$). The relationship between developmental writing course outcome and reading score was of moderate strength, as assessed by a partial n^2 ; 5.1% of the variance in reading score was accounted for by developmental writing course performance. Not holding the COMPASS writing score constant inflates the partial n^2 between reading score and ENGL-090 outcome to 7.3%. Table 1 below illustrates the group means (without covariate adjustment), standard

deviations, and range of scores on the COMPASS reading test for students who received an H, U, or W in developmental writing. Figure 1 also illustrates the results.

Table 1 Reading Score by Developmental Writing Course Outcome

Grade	Reading Mean	SD	Minimum Score	Maximum Score	N
H	68.8	13.0	31	97	194
U	60.0	15.5	19	93	176
W	62.9	16.0	19	94	66

Figure 1 Reading Score by Developmental Writing Course Outcome

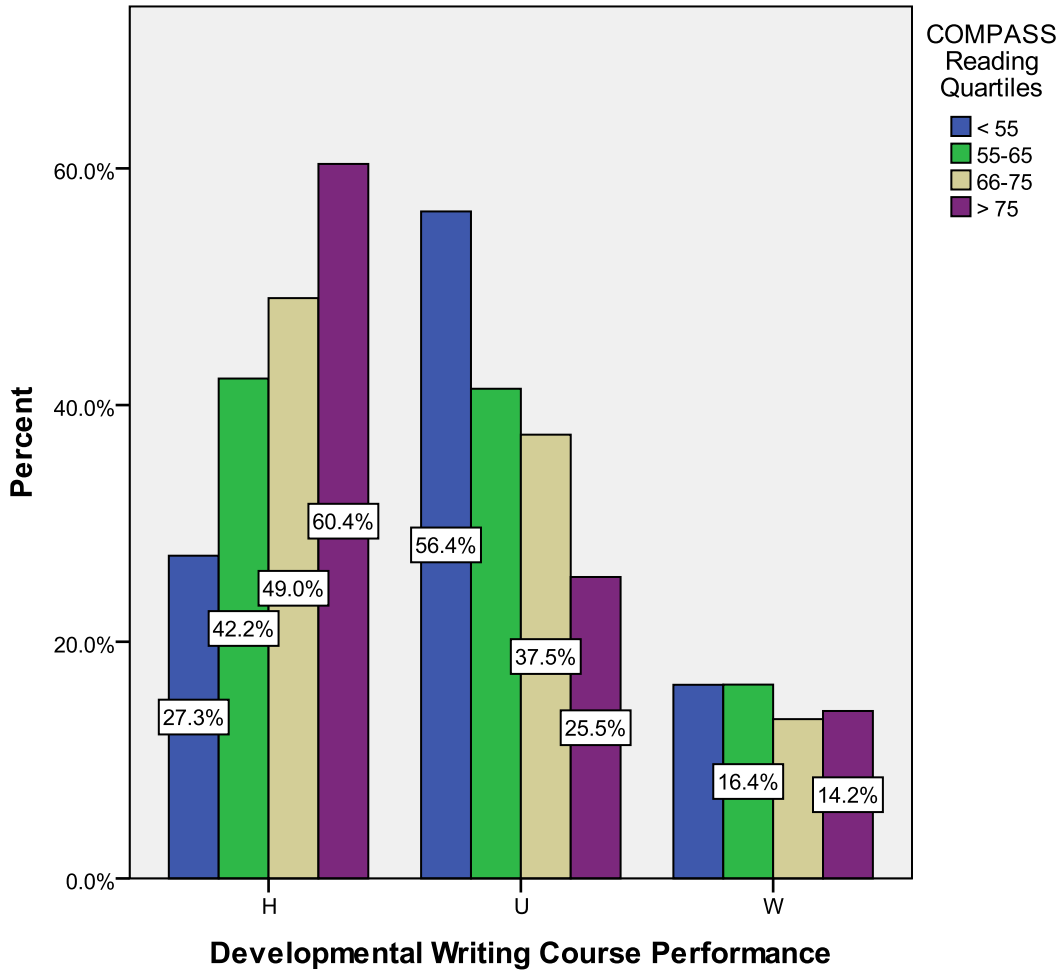


A two-way chi-square analysis was also conducted to determine whether COMPASS reading score range was related to developmental writing course performance. Reading score categories were constructed based on reading quartile scores of the students who scored below 32 on the writing placement test. The relationship between the two variables was statistically significant, Pearson $\chi^2(6, N = 436) = 27.49, p < .001$. The Contingency Coefficient illustrates that 24% of the variance in development writing course outcome was accounted for by COMPASS reading score. In other words, for students who test into remedial writing, knowing students' reading ability enhances our prediction of their outcome by 24%, with students who score higher on the reading test more likely to succeed in ENGL-090 than those who score lower. Whereas only 27% of students who scored below 55 (25th percentile) on the COMPASS reading test successfully completed developmental writing, 60% of individuals who scored above 75 (75th percentile) had a positive outcome. Table 2 and Figure 2 illustrate the results.

Table 2 Reading Score Quartile & Developmental Writing Outcome

ENGL-090	<u>Reading Quartiles</u>			
	< 55	55-65	66-75	>75
H	27.3%	42.2%	49.0%	60.4%
U	56.4%	41.1%	37.5%	25.5%
W	16.4%	16.4%	13.5%	14.2%
Total	100%	100%	100%	100%

Figure 2 Reading Score Quartile & Developmental Writing Outcome



Discussion

Given that nothing was experimentally manipulated, and thus causal inference cannot be made, a potential confounding factor in the two-way chi-square analysis is that student performance across areas is related, meaning students who scored “high” on COMPASS reading may have also scored “high” on COMPASS writing, and it is the latter variable driving the relationship with ENGL-090 performance. The ANCOVA results and a Pearson correlation coefficient analysis between the COMPASS reading and writing scores for students who placed into remedial writing ($r = .28, p < .001$) indicate that while the two variables are related, reading ability has a relationship with ENGL-090 performance beyond the influence of initial writing ability. It is important to reiterate that unless otherwise noted, these analyses were exclusive to the population of students who scored below a 32 on the COMPASS writing test.