The Effectiveness of the College Board's Test of Standard Written English for Placing Students in Entry-Level English Courses

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ABSTRACT

The effectiveness of the Test of Standard Written English (TSWE) as an aid in placing students into introductory English courses was studied by relating test scores to course outcomes for students entering the University of Houston between the fall of 1977 and the spring of 1981. For students placed into the regular introductory English composition course, TSWE scores were effective in predicting end-of-course grades, end-of-course essay scores, and end-of-course test scores. Students with scores below 40 on the TSWE were estimated to have less than 58 chances in 100 of obtaining grades of C or higher in the regular course. For students who were placed into and completed the remedial course, large gains were found from precourse TSWE scores to postcourse TSWE scores. These findings support the placement uses made of the TSWE by the University of Houston. The evidence strongly suggests that students with low TSWE scores are unlikely to succeed in the regular introductory composition course and are likely to profit from the instruction provided in the remedial course.

BACKGROUND

The Test of Standard Written English (TSWE), which students take along with the College Board's Scholastic Aptitude Test (SAT), is designed to provide information useful to colleges in placing students in introductory English composition courses. In particular, TSWE scores are intended to aid in identifying students who need special assistance in improving basic skills in standard written English usage and sentence structure before undertaking regular college-level courses in English composition.

The University of Houston uses scores on the TSWE as an initial screening device to determine whether entering students will take the regular introductory composition course (English 1301) or whether they will be assigned first to a one-semester competency-based developmental course (English 1300). Students with TSWE scores of 40 and above are assigned initially to English 1301, others to English 1300.

The university also administers its own writing placement test. Students initially assigned to English 1300 who do well on the university's writing test may retake TSWE and, if they score 40 or above, transfer to English 1301. For students who remain in English 1300, scores on the writing test help in determining the assignments that students will receive. Students initially assigned to English 1301 may also be reassigned to English 1300 on the basis of scores on the university's writing test.

Experience with these placement procedures at the University of Houston suggests that they are appropriate and that the TSWE is effective in identifying students who need special assistance in developing basic skills. In order to examine this issue more systematically, however, data on the TSWE and on other preadmissions and entry-level measures and data on outcomes in introductory English courses were collected for students entering the university between the fall of 1977 and the spring of 1981. While a number of questions can be addressed through analyses of these data, the focus here is on the TSWE and the degree to which TSWE scores provide information helpful in placing students in appropriate entry-level English courses.

Studies of the use of test scores for placement purposes require special approaches that differ in a number of respects from those typical of traditional predictive validity studies. While many colleges have regularly studied the tests that they use in selecting students for admission, studies of placement tests are less commonly undertaken, and methods appropriate for these studies are less well known. Discussions of special considerations that apply to designing and conducting research on placement may be found in Hills (1971) and in Willingham (1974).

Several kinds of evidence are relevant to evaluating the usefulness of a test as an aid in placing students into regular or remedial entry-level courses. In most cases the initial decision to use a test is based on a review of its content, focusing on two key questions:

- Does the test appear to assess the kinds of skills that are important to success in the regular course?
- Are these skills the ones that the remedial course is designed to improve?

In deciding to use the TSWE as an initial placement instrument at the University of Houston, the English department judged that the test did assess the kinds of critical skills suggested by these questions. It was expected that many students with low scores on the TSWE would lack the skills needed for success in English 1301. At the same time, it was judged that students with skill deficiencies of the kind indicated by low TSWE scores would benefit from the developmental assistance provided in English 1300. The analyses of student test scores and outcomes in the English courses reported here were designed to test these two judgments:

1. that low TSWE scores are associated with a low probability of satisfactory performance in the regular course, and
2. that students assigned to the remedial course on the basis of TSWE scores would improve in the skills measured by the test.

PREDICTION OF OUTCOMES IN THE REGULAR COURSE

One major objective of the placement procedures used is to prevent failures—that is, to identify students whose levels of skills are such that they are unlikely to succeed if they enter English 1301 directly. For test scores to help in this process, they must effectively forecast outcomes in this regular introductory course for those students who enter the

course directly. Ideally, scores above the placement decision level should predict success at a high level of probability, while low scores on the placement test should predict unsatisfactory performance.

Three separate measures of success in English 1301 were used for this study; final course grades, scores on an essay test given at the end of the course, and scores on an objective test given at the end of the course. Table 1 (page 6) gives basic descriptive statistics for the samples of students for whom TSWE scores and each of the outcome measures were available.

Table 1 indicates that the observed correlations between TSWE scores and outcome measures were 0.30, 0.25, and 0.50 for final grades, essay scores, and objective test scores, respectively. If enrollment in English 1301 had not been limited to students with TSWE scores over 40, but had been open to all entering students, these coefficients would have been considerably larger. A standard formula for estimating the correlations that would be found for such unrestricted groups gives values of 0.46, 0.40, and 0.70 for these three correlations. Thus, TSWE scores have sizable positive relationships with each of these measures of success in English 1301.

Table 2 (page 7) provides the results of regression analyses for predicting course outcomes from TSWE scores and includes illustrative predicted values of grades, essay scores, and objective scores for selected TSWE scores. Table 2 also provides estimates of the probabilities that students with given TSWE scores will attain end-of-course grades or scores exceeding specified values.

In analyses in which outcome criteria were studied in pass/fail terms, final grades of C and above were considered to be satisfactory. For the essay and objective tests, no predefined dividing point had been set between satisfactory and unsatisfactory performance. For purposes of illustration, *satisfactory* essay scores were defined as scores of 6 and above (on a 2 to 11 scale) and *satisfactory* objective test scores were defined as scores of 30 and above (on a 10 to 50 scale). Nearly three-quarters (74 percent) of the students obtained grades of C or better. The other passing scores were attained or exceeded by about two-thirds of the students (68 percent obtained essay scores of 6 or higher, and 64 percent obtained objective test scores of 30 or higher).

Table 2 indicates that the probabilities of successful performance on these outcome measures are markedly related to TSWE scores. For example, students with TSWE scores of 40, 50, and 60 have the following estimated probabilities of meeting the criteria defined above:

TSWE Score	Final Grade of C or Better	Essay Grade of 6 or Better	Objective Score of 30 or Better
40	.58	.54	.30
50	.78	.72	.72
60	.91	.86	.95

Table 3 (page 8) provides results of a comparable logistic regression analysis relating TSWE scores to the pass/fail outcomes. Table 4 (page 9) shows the percentages of students in each of several TSWE score intervals attaining these pass/fail outcomes. The results of these analyses are nearly identical to those of the regression results provided in Table 2. The results of each of the methods of estimating probabilities of success are displayed in Figure 1 (for final course grades), in Figure 2 (for essay scores), and in Figure 3 (for objective test scores).

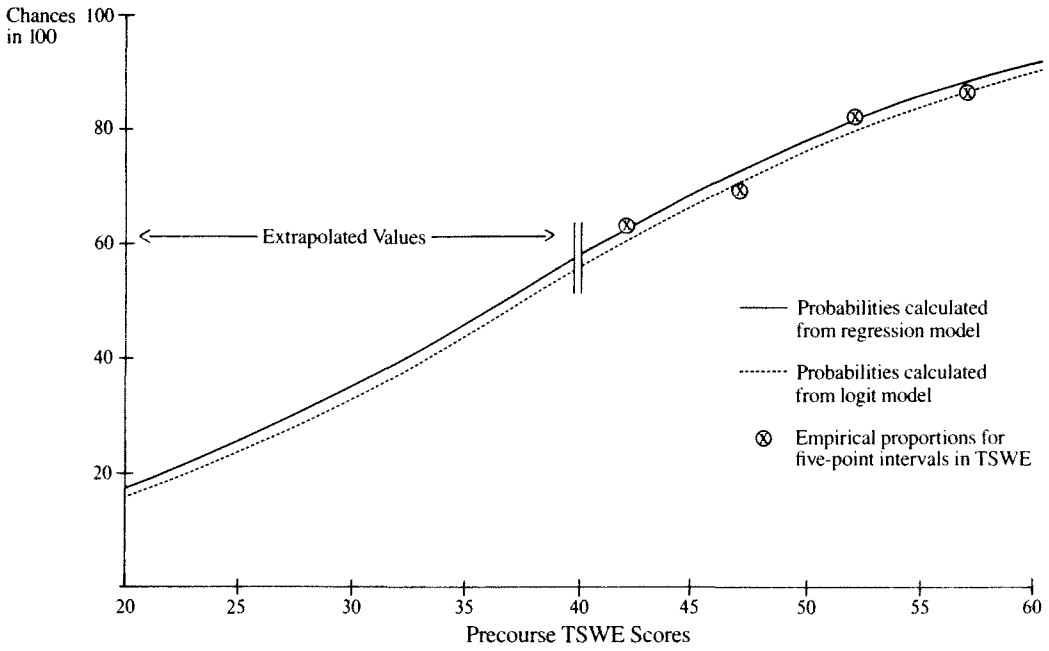

Figure 1: Chances in 100 of Attaining a C or Better Grade in English 1301 Conditional on TSWE Scores.

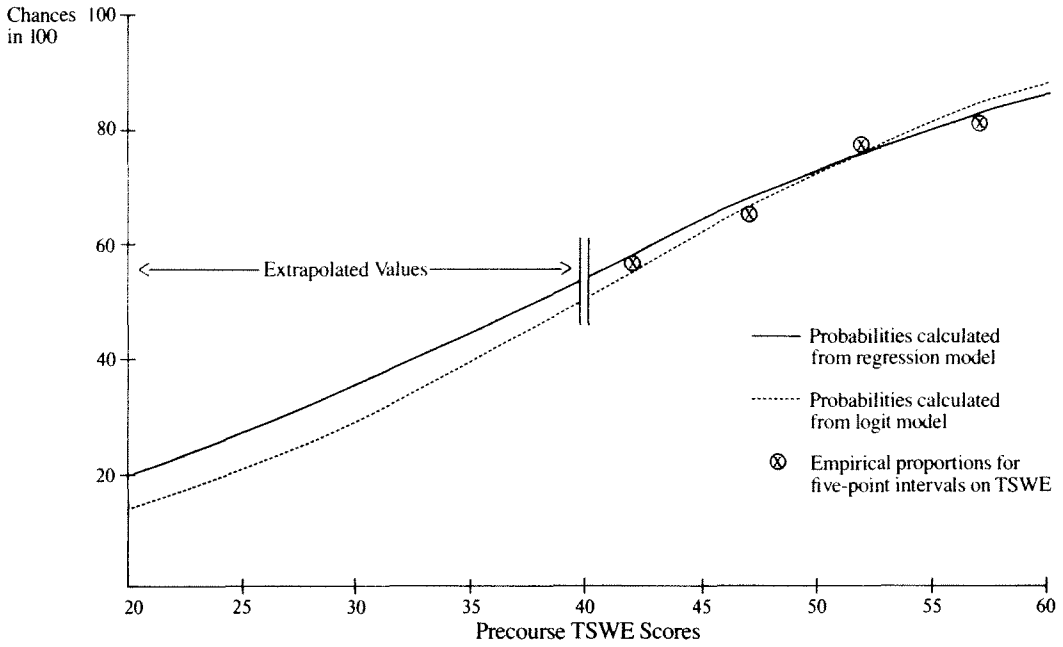

Figure 2. Chances in 100 of Attaining a Final Essay Score of 6 or Better Conditional on TSWE Score.

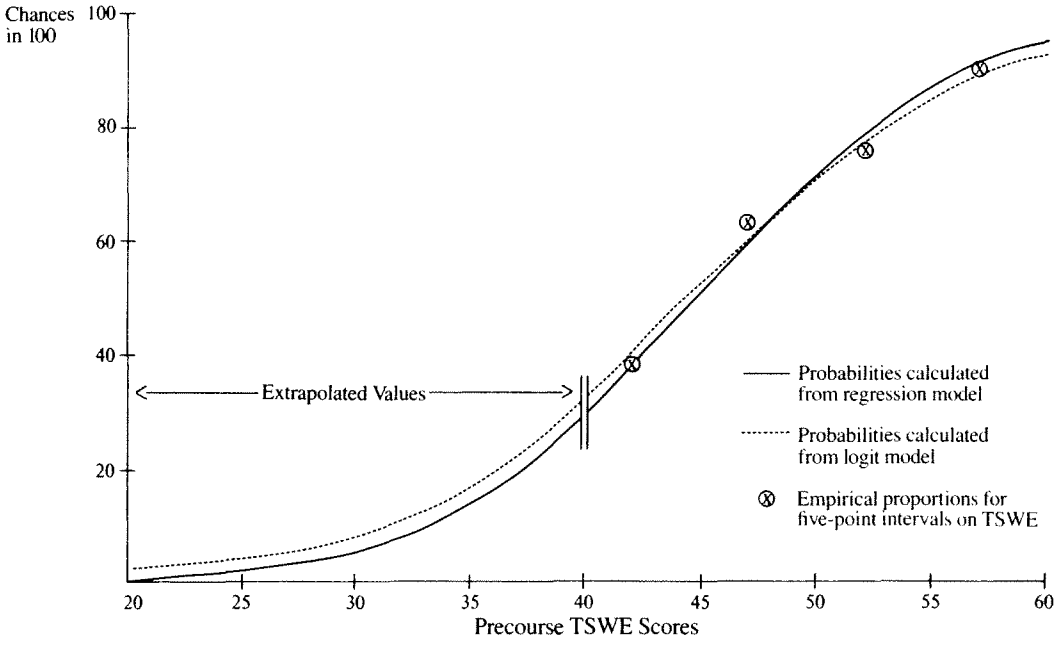

Figure 3. Chances in 100 of Attaining an Objective Test Score of 30 or Better Conditional on TSWE Score.

Since the TSWE had been used to place students into English 1301 during the period that data for this study were collected, all English 1301 students in the sample had TSWE scores of 40 or above. Thus, the likely levels of performance in this course of students scoring below 40 cannot be directly estimated. For this reason, in tables 2 and 3 and in figures 1, 2, and 3, predictions of outcomes associated with TSWE scores lower than 40 are labeled as extrapolated values.

These extrapolations (and the corrected correlations in Table 1) are based on a customary assumption that the regression functions relating outcomes to test scores for the restricted sample also hold for the total population. Although these extrapolated values cannot be verified using available data, the nature of the variables under study and the consistent relationships found in the existing data strongly suggest that the general patterns (if not the precise values) displayed

in Figures 1, 2, and 3 are likely to be correct. Certainly, it would be expected that students with progressively lower TSWE scores would obtain progressively lower average scores on the outcome measures.

Precise estimation of expected outcomes for students with TSWE scores below 40 does not appear to be needed in order to evaluate the placement policy. Students with TSWE scores of 40 have only a little better than a fifty-fifty chance of obtaining C or better grades in English 1301. Assuming that students with lower scores are less likely to obtain C or better grades, these findings support the practice of providing developmental help to such students before they enroll in English 1301.

Taken together the results displayed in Figures 1, 2, and 3 indicate that use of the TSWE (with scores of 40 or higher normally required for placement in English 1301) almost certainly helps to a considerable degree in attaining the major purpose stated at the beginning of this section—to prevent failures in the regular course. The following section examines certain outcomes for those students who are assigned to remediation on the basis of low TSWE scores.

GAINS FOR STUDENTS IN THE REMEDIAL COURSE

In the background section of this report, it was suggested that a test used for remedial placement should assess skills (a) that are important to success in the regular course, and (b) that are likely to be strengthened in the remedial course. The evidence summarized in the preceding section strongly suggests that students with low TSWE scores lack skills needed for success in English 1301. Does the evidence also show that students with low scores profit from instruction in English 1300?

At the University of Houston, the TSWE is used not only as an initial placement device, but also as an end-of-course measure for students in English 1300. Thus, gains on the TSWE can be studied as one means of assessing whether the instruction in English 1300 is effective in remediating the skill deficiencies disclosed by the test. Substantial gains in TSWE scores for students completing the course would suggest both that the test identifies students who are likely to profit from instruction in this developmental course and that the instruction is effective.

This issue is somewhat complicated because many students enrolled in English 1300 drop out or fail to complete course requirements. For the study period, less than half the total English 1300 sample had both pretest and posttest TSWE scores. Thus, the results in this section should be taken to apply to students who persist in English 1300 and who complete course requirements.

The use of TSWE scores to place students in English 1300 also complicates the study of gains. When students are given a test on two occasions (even over a very short interval and with no intervening instruction), individuals chosen on the basis of low initial observed scores will normally show an average gain, while those with high scores will exhibit an average loss. In order to provide a baseline for examining the TSWE gains experienced by students in English 1300, we have estimated the average scores that students with given TSWE scores would attain on a retest when their true scores are unchanged, as on an immediate retest. (See Appendix A for the derivation of these estimates.) The gains achieved by English 1301 students are then compared to this baseline.

Table 5 (page 10) provides the results of a regression analysis relating TSWE posttest scores to TSWE pretest scores for English 1300 students. For selected TSWE pretest scores, expected posttest scores and gains relative to baseline values are also shown. The regression of TSWE posttest on pretest scores and the baseline values are also plotted in Figure 4.

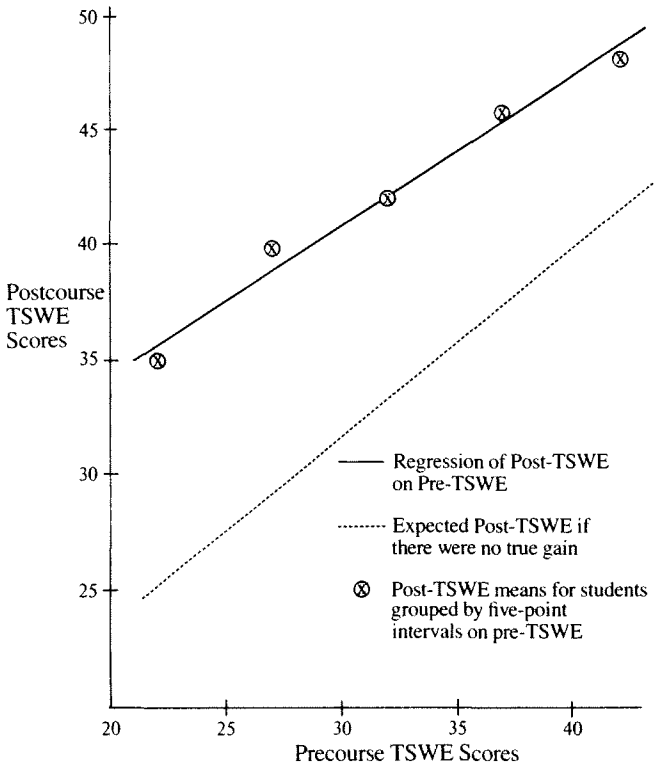

Figure 4. Regression of Postcourse TSWE Scores on Precourse TSWE Scores for Students Enrolled in English 1300

The results show expected TSWE posttest scores exceeding the baseline measure by about 8 to 11 points in the region of interest. Students completing English 1300 exhibit average TSWE gains amounting to approximately a full TSWE standard deviation. (The standard deviation of TSWE pretest scores for all entering students was approximately 9.)

The magnitude of this gain can be illustrated as follows. The mean TSWE pretest score for those students who entered and who completed English 1300 was about 34. A student

with this score would stand at about the thirty-second percentile in TSWE pretest score distribution for all entering students. Such a student completing English 1300 would be predicted to attain a TSWE posttest score of about 43—a score standing at about the sixty-ninth percentile in the TSWE pretest distribution. Thus, such a student would experience an improvement comparable to a gain of 37 percentile rank points in the TSWE score distribution for all entering students.

CONCLUSION

The results of the analyses of student test scores and course outcomes reported here support the uses currently made of TSWE scores by the University of Houston. Analyses of initial TSWE scores in relation to grades obtained in the regular entry-level composition course (English 1301) and to end-of-course essay and objective test scores provide strong evidence that students with low scores on the TSWE are unlikely to succeed in this course. Students with the current minium score for placement into English 1301 (a TSWE score of 40) have about a 55 to 60 percent chance of attaining grades of C or better in that course. Students with somewhat lower scores are judged to have less than a 50 percent chance of success in the regular course if they enter it directly.

At the same time, students who are assigned to a remedial course (English 1300) on the basis of low TSWE scores and who complete the requirements of this course exhibit marked improvement in their TSWE performance and, presumably, in the writing-related skills needed for success in English 1301 and other courses.

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APPENDIXES

Appendix A. Regression of Observed Retest on Observed Initial TSWE Scores Under Conditions of No True Change

This analysis is based on all entering students—the population of students assigned either to English 1300 or to English 1301. Basic statistics for TSWE scores for this group were as follows:

Number of cases: 2,352

TSWE Pretest Mean	39.04
TSWE Pretest Standard Deviation	9.02

The expected test/retest correlation between two observed scores under conditions of no change is equal to the reliability of the test. Since the two sets of scores have equal standard deviations, this value is also the slope of the regression of observed retest scores on initial scores. Since the two sets of scores also have the same mean, the intercept of this regression line is equal to the mean of the initial test scores minus the slope times the mean.

While data were not available to estimate directly the reliability of TSWE scores for the sample of interest in this study, this value can be reasonably closely approximated using data for other samples and the relationship:

$$R = 1 - SEM^2/SD^2$$

where R is the test reliability
SEM is the standard error of measurement
SD is the standard deviation of test scores

A typical value of the SEM for TSWE reported in technical manuals for the test is 3.8. (See Table 2A, page 9 of the *ATP Guide for High Schools and Colleges, [1983-84],* College Entrance Examination Board.) Since this value should be invariant from group to group, it is used here to approximate the SEM for TSWE pretest scores for the students in this study.

Using the value of 3.8 for the SEM, the reliability of the TSWE scores for the group of interest can be estimated as:

$$R = 1 - (3.8)^2/(9.02)^2 = .8225$$

Using the relations described above, the slope and intercept of the regression of retest on initial TSWE scores (under conditions of no true change) can be estimated as:

$$\text{Slope} = R = .8225$$
$$\text{Intercept} = 39.04 - [(.8225)\,(39.04)] = 6.9296$$

Appendix B. Tables

Table 1. Descriptive Statistics: TSWE Scores and Course Outcomes for Students Completing English 1301

A. Final Grades in English 1301 (N = 498)

	TSWE	*Final Grade*
Means	49.12	2.36
Standard Deviations	5.36	.75

Correlation between TSWE and grades: .30
Correlation corrected for selection:* .46

B. End-of-course Essay Scores. (N = 603)

	TSWE	*Essay Score*
Means	48.54	6.39
Standard Deviations	5.35	1.76

Correlation between TSWE and essay: .25
Correlation corrected for selection:* .40

C. End-of-course Objective Test Scores. (N = 596)

	TSWE	*Objective Test Score*
Means	48.56	31.84
Standard Deviations	5.37	6.51

Correlation between TSWE and scores: 0.50
Correlation corrected for selection:* 0.70

* The standard deviation of TSWE scores for all entering students was 9.02. English 1301 students were selected on the basis of TSWE scores, resulting in the smaller standard deviations shown for these groups. The corrected correlations are adjusted to account for explicit selection on TSWE. (See Gulliksen 1950, p. 137 for the appropriate formula.) These corrected coefficients estimate those that would be observed if students enrolling in English 1301 were representative of all entering students.

Table 2. Prediction of Course Outcomes in English 1301 from TSWE Scores: Regression Analyses

Estimated Slopes, Intercepts, and Standard Errors for Regressions of Course Outcomes on TSWE Scores

	Course Outcomes		
	Final Grades	*Essay Scores*	*Objective Test Scores*
Slope	.0415	.0820	.6117
Intercept	.3173	2.4092	2.1361
Standard Error	.7176	1.7022	5.6195

Illustrative Predicted Values

		Predicted Course Outcomes		
	TSWE Score	*Final Grade*	*Essay Scores*	*Objective Test Scores*
Extra-	20	1.15	4.05	14.4
polated	25	1.36	4.46	17.4
Values	30	1.56	4.87	20.5
	35	1.77	5.28	23.5
Values in	40	1.98	5.69	26.6
Range of	45	2.19	6.10	29.7
Observed	50	2.39	6.51	32.7
Data	55	2.60	6.92	35.8
	60	2.81	7.33	38.8

Illustrative Probabilities from the Regression Models

		Probabilities		
	TSWE Score	*Final Grade of C or Better*	*Essay Score of 6 or Better*	*Objective Score of 30 or Better*
Extra-	20	.17	.20	.004
polated	25	.25	.27	.02
Values	30	.35	.36	.05
	35	.46	.45	.14
Values in	40	.58	.54	.30
Range of	45	.69	.64	.51
Observed	50	.78	.72	.72
Data	55	.86	.80	.87
	60	.91	.86	.95

Table 3. Prediction of Course Outcomes in English 1301 From TSWE Scores: Logistic Regression Analyses

Estimated Slopes and Intercepts for Logistic Regressions of Dichotomous Course Outcomes on TSWE Scores

	Course Outcomes		
	Final Grade of C or Better	*Essay Score of 6 or Better*	*Objective Score of 30 or Better*
Slope	.0938	.0915	.1692
Intercept	−3.5061	−3.6275	−7.5312

Illustrative Probabilities from the Logistic Regression Models

		Probabilities		
	TSWE Score	*Final Grade of C or Better*	*Essay Score of 6 or Better*	*Objective Score of 30 or Better*
Extra-	20	.16	.14	.02
polated	25	.24	.21	.04
Values	30	.33	.29	.08
	35	.44	.40	.17
Values in	40	.56	.51	.32
Range of	45	.67	.62	.52
Observed	50	.77	.72	.72
Data	55	.84	.80	.86
	60	.89	.87	.93

Table 4. Relationships of Course Outcomes in English 1301 to TSWE Scores

Frequencies of Final Grades of C or Better for Given TSWE Scores

TSWE Score	Final Grades: Less than C	Final Grades: C or Better	Total	Percent C or Better	Model Probabilities at Interval Midpoints: Regression	Model Probabilities at Interval Midpoints: Logistic Regression
40-44	46	74	120	62	.62	.61
45-49	46	101	147	69	.73	.71
50-54	25	115	140	82	.81	.80
55-60	13	78	91	86	.89	.87
Total	130	368	498			

Frequencies of Essay Scores of 6 or Better for Given TSWE Scores

TSWE Score	Essay Score: Less than 6	Essay Score: 6 or Better	Total	Percent 6 or Better	Model Probabilities at Interval Midpoints: Regression	Model Probabilities at Interval Midpoints: Logistic Regression
40-44	75	94	169	56	.58	.55
45-49	65	121	186	65	.67	.66
50-54	34	117	151	77	.75	.76
55-60	17	80	97	82	.83	.84
Total	191	412	603			

Frequencies of Objective Scores of 30 or Better for Given TSWE Scores

TSWE Score	Objective Test Score: Less than 30	Objective Test Score: 30 or Better	Total	Percent 30 or Better	Model Probabilities at Interval Midpoints: Regression	Model Probabilities at Interval Midpoints: Logistic Regression
40-44	103	64	167	38	.38	.40
45-49	68	116	184	63	.60	.60
50-54	36	111	147	76	.79	.78
55-60	9	89	98	91	.92	.90
Total	216	380	596			

Table 5. Analyses of Precourse to Postcourse Gains on TSWE for Students Enrolled in English 1300

Regression of Postcourse TSWE Scores on Precourse TSWE Scores (N = 651)

	Pre-TSWE	*Post-TSWE*
Means	33.68	43.19
Standard Deviations	5.06	7.26
Correlation: .45		
Regression slope:	.6507	
Regression intercept:	21.2756	
Standard Error:	6.4760	

Expected Gains for Students with Selected Precourse TSWE Scores

Initial TSWE Score	*Expected Retest Score if No True Gain**	*Regression Estimate of Postcourse TSWE*	*Estimated Gain*
20	23.4	34.3	10.9
25	27.5	37.5	10.0
30	31.6	40.8	9.2
35	35.7	44.1	8.4
40	39.8	47.3	7.5
33.7 (sample mean)	34.6	43.2	8.6

*See Appendix A for the derivation of the regression of retest on initial scores under conditions of no true gain.