



Office of Assessment
SAM HOUSTON STATE UNIVERSITY

A Report of the Course-Embedded Texas Government Assessment

POLS 2306

Fall 2022-Spring 2023

Description of the Course-Embedded Texas Government Assessment

Beginning in fall 2022, a new locally developed pretest to posttest was administered within sections of POLS 2306: Texas Government. The instrument consisted of 10 multiple-choice questions and was administered at the beginning and at the end of the fall and spring semesters. The instrument was developed by the faculty of the Department of Political Science for use as part of their ongoing programmatic assessment as well as for Core Learning assessment. As the instrument was locally developed by faculty from the Department of Political Science, it is assumed that the instrument has content-related validity (Banta & Palomba, 2015). Additionally, as this test was embedded within the POLS 2306: Texas Government courses, the student scores represent authentic student work (Banta & Palomba, 2015; Kuh et al., 2015). However, as the instrument is not for a grade within the course, it represents a low-stakes assessment of student learning.

The student data presented within this report reflect student performance regarding the Texas Higher Education Coordinating Board's Core Learning Objective of Social Responsibility (THECB, 2023). The THECB (2023) defines Social Responsibility as "intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities." Data from this assessment align with the "knowledge of civic responsibility" element of the broader concept of Social Responsibility.

Methodology

A total of 184 students took the pretest, and a total of 86 students took the posttest for all sections of POLS 2306: Texas Government for the 2022-2023 academic year; however, not all student test scores were used for analysis. To determine whether student performance increased from pretest to posttest, a dependent samples *t*-test was used for analysis. Student identification numbers were collected along with student scores to identify each student's score on both the pretest and posttest. A total of 58 students could be identified as taking both the pre- and posttests. All statistical analysis was therefore conducted on only those students for whom both pre- and posttest scores could be identified.

Prior to conducting inferential statistics to determine whether differences were present between the students' pre- to posttest scores, checks were conducted to determine the extent to which these data were normally distributed. All four of the standardized skewness and kurtosis coefficients (i.e., the skewness and kurtosis values divided by their standard error) were within the range of normality of ± 3 (Onwuegbuzie & Daniel, 2002) for the face-to-face, online, and combined student populations. Therefore, a parametric dependent samples *t*-test was used to analyze the student performance data for the combined populations. A complete breakdown of the standardized skewness and kurtosis coefficients is in Table 1.

Table 1

Standardized Skewness and Kurtosis Values for Student Pre- and Posttest Scores for 2022-2023

Student Population	Standardized Skewness Coefficient	Standardized Kurtosis Coefficient
Face-to-Face Students		
Pretest	-0.10	-0.60
Posttest	-0.24	0.35
Online Students		
Pretest	0.11	-0.97
Posttest	-0.35	-0.63
All Students		
Pretest	0.05	-0.84
Posttest	-0.33	-0.10

Results

A parametric dependent samples *t*-test revealed a statistically significant difference at the $p \leq .01$ level between students' pre- to posttest scores for students enrolled in face-to-face sections of POLS 2306: Texas Government for the 2022-2023 academic year, $t(22) = -3.09$, $p = .005$. This difference represented a large effect size (Cohen's *d*) of 0.80 (Cohen, 1988). The average student score increased from 39.57% to 56.96%, for an increase of 17.39%. This equated to an average increase of 1.74 questions answered correctly from pre- to posttest. Readers are directed to Table 2 for the descriptive statistics for student pre- and posttest scores.

Table 2

Descriptive Statistics for Student Pre- and Posttest Scores on Course-Embedded Test in POLS 2306: Texas Government for 2022-2023 (Face-to-Face)

Test Version	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i> %	<i>SD</i> %
Pretest Scores	23	3.96	1.94	39.57	19.42
Posttest Scores	23	5.70	2.38	56.96	23.82

A parametric dependent samples *t*-test revealed a statistically significant difference at the $p \leq .001$ level between students' pre- to posttest scores for students enrolled in online sections of POLS 2306: Texas Government for the 2022-2023 academic year, $t(34) = -6.97$, $p < .001$. The average student score increased from 35.43% to 60.57%, for an increase of 25.14%. This equated to an average increase of 2.52 questions answered correctly from pre- to posttest. Readers are directed to Table 3 for the descriptive statistics for student pre- and posttest scores.

Table 3

Descriptive Statistics for Student Pre- and Posttest Scores on Course-Embedded Test in POLS 2306: Texas Government for 2022-2023 (Online)

Test Version	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i> %	<i>SD</i> %
Pretest Scores	35	3.54	1.77	35.43	17.71
Posttest Scores	35	6.06	1.98	60.57	19.84

A parametric dependent samples *t*-test revealed a statistically significant difference at the $p \leq .001$ level between students' pre- to posttest scores for students enrolled in online sections of POLS 2306: Texas Government for the 2022-2023 academic year, $t(57) = -7.06$, $p < .001$. This difference represented a large effect size (Cohen's *d*) of 1.10 (Cohen, 1988). The average student score increased from 37.07% to 59.14%, for an increase of 22.07%. This equated to an average increase of 2.20 questions answered correctly from pre- to posttest. Readers are directed to Table 4 for the descriptive statistics for student pre- and posttest scores.

Table 4

Descriptive Statistics for Student Pre- and Posttest Scores on Course-Embedded Test in POLS 2306: Texas Government for 2022-2023 (All students)

Test Version	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M %</i>	<i>SD %</i>
Pretest Scores	58	3.71	1.84	37.07	18.35
Posttest Scores	58	5.91	2.14	59.14	21.38

Additional information regarding student performance can also be gained through a disaggregated or item analysis of student performance on individual test questions. This item analysis revealed that students in face-to-face sections scored statistically significantly higher ($p \leq .05$) on the posttest for Questions 2, 4, and 5, as well as for Question 7 ($p \leq .01$). The effect size for all four questions was moderate (Cohen, 1988). Statistical significance was not present for the remaining questions. The results for a complete breakdown of item analysis data are presented in Table 5.

Table 5

Percentage of Face-to-Face Students Correctly Answering Pre- and Posttest Questions for 2022-2023

	Pretest %	Posttest %	Mean Difference	<i>p</i>	Cohen's <i>d</i>
Question 1	43	65	22	0.096	
Question 2	0	17	17	0.043*	0.62
Question 3	48	52	4	0.803	
Question 4	61	87	26	0.011*	0.61
Question 5	26	57	31	0.016*	0.65
Question 6	70	83	13	0.186	
Question 7	26	57	31	0.005**	0.65
Question 8	30	57	27	0.083	
Question 9	13	17	4	0.665	
Question 10	78	78	0	n/a	

Note. $n = 23$. * significant at $p \leq 0.05$; ** significant at $p \leq 0.01$; *** significant at $p \leq 0.001$. Cohen's *d* from 0.2–0.49 indicates a small effect size, 0.50–0.79 indicates a moderate effect size, and 0.80 and higher indicates a large effect size (Cohen, 1988).

An item analysis for students in online sections revealed that they scored statistically significantly higher on 7 of the 10 test questions (Question 3 at $p \leq 0.05$, Questions 2, 4, 5, and 10 at $p \leq 0.01$, and Questions 7 and 8 at $p \leq 0.001$) from pre-to posttest. The effect size for Questions 2, 3, 4, and 10 was moderate, and the effect size for Questions 5, 7, and 8 was large

(Cohen, 1988). Statistical significance was not present for the remaining questions. The results for a complete breakdown of item analysis data are presented in Table 6.

Table 6

Percentage of Online Students Correctly Answering Pre- and Posttest Questions for 2022-2023

	Pretest %	Posttest %	Mean Difference	<i>p</i>	Cohen's <i>d</i>
Question 1	54	60	6	0.600	
Question 2	14	43	29	0.010**	0.67
Question 3	40	66	26	0.027*	0.53
Question 4	49	74	25	0.010**	0.53
Question 5	14	51	37	0.002**	0.85
Question 6	77	74	(3)	0.768	
Question 7	23	77	54	<.001***	1.27
Question 8	11	46	35	<.001***	0.83
Question 9	9	23	14	0.096	
Question 10	63	91	28	0.006**	0.70

Note. $n = 35$. (Decrease in score from pretest to posttest); * significant at $p \leq 0.05$; ** significant at $p \leq 0.01$; *** significant at $p \leq 0.001$. Cohen's *d* from 0.2–0.49 indicates a small effect size, 0.50–0.79 indicates a moderate effect size, and 0.80 and higher indicates a large effect size (Cohen, 1988).

An item analysis for students in all sections combined revealed that face-to-face and online students scored statistically significantly higher ($p \leq 0.001$) on Questions 2, 4, 5, 7, and 8, as well as Question 10 ($p \leq 0.05$) from pre- to posttest. The effect size for Question 7 was large, Questions 2, 4, 5, and 8 was moderate, and Question 10 was small (Cohen, 1988). Statistical significance was not present for the remaining questions. The results for a complete breakdown of item analysis data are presented in Table 7.

Table 7

Percentage of All Students Correctly Answering Pre- and Posttest Questions for 2022-2023

	Pretest %	Posttest %	Mean Difference	<i>p</i>	Cohen's <i>d</i>
Question 1	50	62	12	0.146	
Question 2	9	33	24	0.001***	0.62
Question 3	43	60	17	0.077	
Question 4	53	79	26	<.001***	0.57
Question 5	19	53	34	<.001***	0.75
Question 6	74	78	4	0.621	
Question 7	24	69	45	<.001***	1.00
Question 8	19	50	31	<.001***	0.69
Question 9	10	21	11	0.109	
Question 10	69	86	17	0.024*	0.41

Note. $n = 58$. * significant at $p \leq 0.05$; ** significant at $p \leq 0.01$; *** significant at $p \leq 0.001$. Cohen's *d* from 0.2–0.49 indicates a small effect size, 0.50–0.79 indicates a moderate effect size, and 0.80 and higher indicates a large effect size (Cohen, 1988).

References

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