

# Advanced Placement English Exam Scores: A Comparison of Scores for Hispanic Students From California, Texas, and Arizona

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## Abstract

We compared the performance of Hispanic students from California, Texas, and Arizona on the two Advanced Placement (AP) English exams (i.e., English Language and Composition and English Literature and Composition) using archival data from the College Board from 1997 through 2012. Pearson chi-square tests yielded statistically significant differences in all 16 comparisons for the English Language and Composition exams and in 15 of the 16 comparisons for the English Literature and Composition exams. Students from Arizona had the highest passing rate in 21 comparisons, California had the highest passing rate in 11 comparisons, and Texas had the lowest passing rate in all 32 comparisons. The majority of Hispanic students who took an AP English exam failed to earn a score that would result in college credit. Implications of our findings are discussed.

## Keywords

advanced placement, Hispanic students, Arizona, California, Texas

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Quality education has been and remains a high priority for parents and politicians for decades. In 1982, Ouchi suggested that the quality of a country's educational system is paramount to the social and economic health of the country. President Obama, in echoing that sentiment in 2010 in an address on higher education, stated,

Education is the economic issue of our time. Education is an economic issue when nearly eight in 10 new jobs will require workforce training or a higher education by the end of this decade. Education is an economic issue when we know beyond a shadow of a doubt that countries that out-educate us today, they will out-compete us tomorrow. (Obama, 2010, paras. 15-16)

In an attempt to improve the caliber of education provided to students, state and federal legislation has been utilized to increase the accountability of schools. For example, states are required by the No Child Left Behind Act of 2001 (NCLB) to administer tests to assess progress toward meeting federal accountability standards in math and reading and represents then-President Bush's effort to end "soft racism of low expectations" by requiring states to close achievement gaps (Lee, 2006, p. 5). Moreover, states are required by the legislation to meet achievement targets for all racial, ethnic, and socio-economic subgroups (Lee, 2006). In prepared remarks, the State Superintendent of Public Instruction in California stated,

Quite simply, in a demanding global economy, the achievement gap threatens not only the future of California students, but also the future economic health and security of this state and nation. The simple yet terrible fact is that the population of students that is growing the fastest in this state is the population that is often lagging the farthest behind. (O'Connell, 2006, p. 14)

Hispanics represent the fastest growing minority group in the United States (Ennis, Rios-Vargas, & Albert, 2011). In fact, the Hispanic population increased from 22 million in 1990 to 50.5 million in 2010 (Ennis et al., 2011). According to the 2010 U.S. Census, Hispanics account for 16% of the total U.S. population (Ennis et al., 2011). The Hispanic population is diverse and varies by country of origin, for example, 63% are of Mexican origin, 9% are of Puerto Rican origin, and 4% are of Cuban origin (Ennis et al., 2011). Moreover, the Hispanic population fluctuates by geographical region and is concentrated in states bordering Mexico (Ennis et al., 2011; Hemphill & Vanneman, 2011). Consequently, almost two thirds of the Hispanic population of Mexican origin, residing in the United States, is residents of California, Texas, and Arizona (Ennis et al., 2011).

Nationwide, currently more than 11 million Hispanic students are enrolled in U.S. public schools (Fry & Gonzales, 2008; Murdock, 2011). Murdock (2011) and Passell (2011) predicted that in the next 40 years, immigrants and their children would provide for almost all of the growth in the labor force. Unfortunately, numerous researchers (e.g., American College Testing [ACT], 2007; Kober, 2001; Rojas-LeBouef & Slate, 2011) have documented the existence of an achievement gap between White and Hispanic students in reading and math. Moreover, the achievement gaps exist at all levels of the educational system. Specifically, White students outperform Hispanic students at elementary, intermediate, and high school levels (Murphy, 2009; Rojas-LeBouef & Slate, 2011). Consequently, the achievement gap is also evident in college readiness and college completion rates (Barnes & Slate, 2010, 2011; Barnes, Slate, & Rojas-LeBouef, 2010; Moore et al., 2010; Yamamura, Martinez, & Saenz, 2010). For example, present in the State of College Readiness for Latino Students Report published by ACT (2007) was the fact that only 33% of Hispanic students met the readiness benchmark for reading. Furthermore, the number of Hispanic students meeting college readiness criteria in both reading and mathematics was estimated to be between 8% and 11% (ACT, 2007).

Numerous researchers (Burris & Welner, 2005; Dougherty, Mellor, & Jian, 2006; Klopfenstein, 2004a) have attributed the lower levels of college readiness for Hispanic students to a lack of access to rigorous curriculum. Advanced Placement (AP) courses represent one initiative that allow high school students to experience curricula that is similar to the rigor of college-level coursework (Burris & Welner, 2005; Dougherty et al., 2006; Kaye, 2006; Klopfenstein, 2004a, 2004b; Kober, 2001). The College Board (2002) developed a policy to encourage increased access to AP courses for underrepresented students; specifically, the *AP Equity Policy Statement* reads,

The College Board and the Advanced Placement Program encourage teachers, AP Coordinators, and school administrators to make equitable access a guiding principle for their AP programs. The College Board is committed to the principle that all students deserve an opportunity to participate in rigorous and academically challenging courses and programs. All students who are willing to accept the challenge of a rigorous academic curriculum should be considered for admission to AP courses. The Board encourages the elimination of barriers that restrict access to AP courses for students from ethnic, racial, and socioeconomic groups that have been traditionally underrepresented in the AP Program. Schools should make every effort to ensure that their AP classes reflect the diversity of their student population. (p. 2)

## **Statement of the Problem**

The implications of academic deficits for Hispanic students are far reaching. Specifically, the College Board (2011) asserted that improving college success for students who are low-income or ethnic minorities is critical to the nation's economic and social wellbeing. The College Board's Commission on Access, Admissions, and Success in Higher Education posited that the percentage of American adults with postsecondary education lags behind the growth in this area in other industrialized nations (College Board, 2011). Participation in rigorous coursework such as AP classes in high school is essential for increasing college readiness and success (Dougherty et al., 2006; Geiser & Santelices, 2004; Murdock, 2006; Reid & Moore, 2008). Unfortunately, numerous researchers (e.g., Barnes & Slate, 2011; Yamamura et al., 2010) have determined that Hispanic students lag behind White and Asian students in academic achievement, college readiness, college enrollment, and college completion.

## **Purpose of the Study**

AP programs are frequently touted as means for increasing college readiness for all students (College Board, 2011). For school leaders to meet the needs of all students, differences in the performance in English of Hispanic students participating in accelerated learning programs was investigated. One purpose of this study was to conduct a comparison of Hispanic student exam scores from California, Texas, and Arizona on AP English exams. In particular, the performance of Hispanic students on AP exams for English Language and Composition and English Literature and Composition was analyzed. Archival data from the College Board were utilized to make comparisons of Hispanic student performance on the two AP English exams administered from 1997 to 2012.

## **Significance of the Study**

Accelerated learning options such as dual credit and AP courses are represented as exemplars of challenging curricula that prepare students for the academic rigor of collegiate coursework (Eyring, 2011; Palaich, Blanco, Anderson, Silverstein, & Myers, 2006). Although several researchers (e.g., Dounay, 2006; González, Szecsy, Combs, & Reyes, 2004; Moore & Slate, 2008) have documented gaps in the participation rates of ethnic minority students in accelerated learning options such as dual credit and AP, few researchers (e.g., Davis, Joyner, & Slate, 2011) have compared the

performance of underrepresented student groups in accelerated programs from one state to another.

Studies in which the performance of Hispanic students in AP programs has been examined are relevant to education leaders because the program prepares students for the academic rigor of collegiate coursework (College Board, 2011). Differences in Hispanic student achievement in English on AP exams may be attributed to differences in the educational programs of the three states. It is hoped that the findings of this study may be used for identifying and developing promising practices and policies related to Hispanic student participation in current and future AP programs.

### *Research Questions*

For this study of performance of Hispanic students from California, Texas, and Arizona on AP exams, two research questions were addressed for each of the 16 years of data available from 1997 through 2012.

**Research Question 1:** What is the difference in the performance of Hispanic students on the AP English Language and Composition exam as a function of state residency (i.e., California, Texas, and Arizona)?

**Research Question 2:** What is the difference in the performance of Hispanic students on the AP English Literature and Composition exam as a function of state residency (i.e., California, Texas, and Arizona)?

### **Method**

Archival data from the administration of AP exams for Hispanic students living in California, Texas, and Arizona between 1997 and 2012 were obtained for this investigation. For the purposes of this study, performance on the overall AP exams of Hispanic students who lived in California, Texas, and Arizona were examined. In addition, the scores earned by Hispanic students living in the three states were analyzed for the following exams: English Language and Composition and English Literature and Composition.

Sixteen years of archival data were acquired from the College Board website. The website includes an excel file for every year and for each state containing student participation and performance on AP English exams. The data are separated by gender, ethnicity, and grade level. Examined in this study was the performance of Hispanic students from California, Texas, and Arizona on AP English exams to determine if differences existed in performance as a function of state residency.

## Results

The purpose of this study was to compare the performance of Hispanic students from California, Texas, and Arizona on AP English exams. Data for the 16 years from 1997 through 2012 were analyzed. A series of 3 (state of residency)  $\times$  5 (AP exam score) chi-square procedures were conducted to examine the relationship between the variables. Specifically, Pearson chi-square tests were utilized to ascertain whether statistically significant differences in AP exam score distributions were present among the three states: California, Texas, and Arizona.

### Research Question 1

For the first research question, the focus was on comparing the performance of Hispanic students from California, Texas, and Arizona on the AP English Language and Composition exam for each test administration from 1997 through 2012. Frequencies and percentages of overall exam scores for Hispanic students from California, Texas, and Arizona for the 1997 through 2001 test administrations are included in Table 1. For the 1997 test administration, the result was statistically significant,  $\chi^2(8, N = 2,173) = 22.49, p = .004$ , Cramer's  $V = .07$ , a trivial effect size (Cohen, 1992). In general, Arizona (50.00%) had a greater percentage of students who earned a score of 3 or higher than did California (42.15%) and Texas (34.44%).

Regarding the 1998 test administration, differences in AP English Language and Composition exam scores earned by Hispanic students from California, Texas, and Arizona were statistically significant,  $\chi^2(8, N = 3,062) = 83.54, p < .001$ , Cramer's  $V = .12$ , a small effect (Cohen, 1992). A substantially higher percentage of Hispanic students from Arizona (70.27%) earned a score of 3 or higher, compared with California (38.60%) and Texas (26.67%). For the 1999 AP test administration, results were again statistically significant,  $\chi^2(8, N = 4,557) = 90.10, p < .001$ , Cramer's  $V = .10$ , small effect size (Cohen, 1992). In 1999, 54.00% of Hispanic students from Arizona who took the AP English Language and Composition exam earned a score of 3 or higher compared with 33.92% from California and 23.28% from Texas. For the 2000 AP test administration, the result was statistically significant,  $\chi^2(8, N = 5,883) = 65.86, p < .001$ , Cramer's  $V = .08$ , trivial effect size (Cohen, 1992). A larger percentage of Hispanic students from Arizona (44.27%) earned scores of 3 or higher compared with California (31.56%) and Texas (23.69%). For the 2001 AP test administration, the result was statistically significant,  $\chi^2(8, N = 7,432) = 41.60, p < .001$ , Cramer's  $V = .05$ , trivial effect size (Cohen, 1992). A greater percentage of Hispanic students from Arizona

**Table 1.** Frequencies and Percentages of Advanced Placement English Language and Composition Exam Scores for Hispanic Students for the 1997 Through the 2001 Test Administrations.

Year	Exam score	California	Texas	Arizona
		<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
1997	5	20 (2.40)	36 (2.73)	2 (10.00)
	4	81 (9.34)	99 (7.49)	2 (10.00)
	3	253 (30.41)	320 (24.22)	6 (30.00)
	2	333 (40.02)	594 (44.97)	9 (45.00)
	1	145 (17.43)	272 (20.59)	1 (5.00)
1998	5	30 (3.00)	39 (1.93)	3 (8.11)
	4	89 (8.90)	132 (6.52)	9 (24.32)
	3	267 (26.70)	369 (18.22)	14 (37.84)
	2	406 (40.60)	900 (44.44)	9 (24.32)
	1	208 (20.80)	585 (28.89)	2 (5.41)
1999	5	40 (2.71)	33 (1.09)	1 (2.00)
	4	104 (7.06)	155 (5.11)	7 (14.00)
	3	356 (24.15)	518 (17.08)	19 (38.00)
	2	719 (48.78)	1,622 (53.48)	20 (40.00)
	1	255 (17.30)	705 (23.24)	3 (6.00)
2000	5	38 (1.83)	52 (1.39)	4 (6.56)
	4	158 (7.63)	199 (5.31)	7 (11.48)
	3	458 (22.10)	637 (16.99)	16 (26.23)
	2	846 (40.83)	1,611 (42.96)	24 (39.34)
	1	572 (27.61)	1,251 (33.36)	10 (16.39)
2001	5	53 (1.80)	46 (1.04)	1 (1.56)
	4	148 (5.04)	183 (4.13)	5 (7.81)
	3	513 (17.45)	729 (16.46)	19 (29.69)
	2	1,434 (48.79)	2,059 (46.49)	30 (46.88)
	1	791 (26.91)	1,412 (31.88)	9 (14.06)

(39.06%) earned a score of 3 or higher compared with California (24.29%) and Texas (21.63%).

Frequencies and percentages of score distributions on the AP English Language and Composition exam for Hispanic students for the 2002 through 2006 test administrations are presented in Table 2. For the 2002 AP test administration, the result was again statistically significant,  $\chi^2(8, N = 8,577) = 80.03, p < .001$ , Cramer’s  $V = .07$ , trivial effect size (Cohen, 1992). A substantially higher percentage of Hispanic students from Arizona (52.63%)

**Table 2.** Frequencies and Percentages of Advanced Placement English Language and Composition Exam Scores for Hispanic Students for the 2002 Through the 2006 Test Administrations.

Year	Exam score	California	Texas	Arizona
		<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
2002	5	59 (1.62)	76 (1.57)	3 (3.16)
	4	241 (6.62)	282 (5.82)	15 (15.79)
	3	721 (19.82)	833 (17.20)	32 (33.68)
	2	1,601 (44.01)	2,001 (41.31)	35 (36.84)
	1	1,016 (27.93)	1,652 (34.10)	10 (10.53)
2003	5	56 (1.24)	60 (1.16)	11 (10.19)
	4	269 (5.94)	246 (4.77)	15 (13.89)
	3	896 (19.78)	944 (18.29)	29 (26.85)
	2	2,040 (45.04)	2,246 (43.53)	43 (39.81)
	1	1,268 (28.00)	1,664 (32.25)	10 (9.26)
2004	5	79 (1.50)	67 (1.18)	5 (3.33)
	4	284 (5.39)	250 (4.39)	28 (18.67)
	3	940 (17.84)	863 (15.15)	42 (28.00)
	2	2,590 (49.16)	2,502 (43.93)	61 (40.67)
	1	1,376 (26.12)	2,014 (35.36)	14 (9.33)
2005	5	72 (1.13)	64 (0.93)	6 (2.80)
	4	293 (4.60)	261 (3.78)	22 (10.28)
	3	1,159 (18.20)	1,054 (15.28)	56 (26.17)
	2	3,087 (48.47)	2,805 (40.66)	94 (43.93)
	1	1,758 (27.60)	2,715 (39.35)	36 (16.82)
2006	5	73 (1.13)	49 (0.81)	7 (2.90)
	4	301 (4.68)	207 (3.42)	27 (11.20)
	3	1,056 (16.40)	776 (12.84)	59 (24.48)
	2	3,260 (50.64)	2,492 (41.22)	119 (49.38)
	1	1,748 (27.15)	2,521 (41.70)	29 (12.03)

earned scores of 3 or higher compared with students from California (28.06%) and Texas (24.59%). Regarding the 2003 AP test administration, the result was again statistically significant,  $\chi^2(8, N = 9,797) = 125.49, p < .001$ , Cramer's  $V = .08$ , trivial effect size (Cohen, 1992). The majority (50.93%) of Hispanic students from Arizona earned scores of 3 or higher compared with 26.96% from California and 24.22% from Texas. For the 2004 AP test administration, the result was again statistically significant,  $\chi^2(8, N = 11,115) = 207.51, p < .001$ , Cramer's  $V = .10$ , small effect size (Cohen, 1992). A greater percentage of Hispanic students from Arizona (50.00%) earned a score of 3



or higher than did students from California (24.73%) and Texas (20.72%). Likewise, regarding the 2005 AP test administration, the result was again statistically significant,  $\chi^2(8, N = 13,482) = 259.43, p < .001$ , Cramer's  $V = .10$ , small effect size (Cohen, 1992). A greater percentage of Hispanic students from Arizona (39.25%) earned scores of 3 or higher on the AP English Language and Composition exam compared with students from California (23.93%) and Texas (19.99%). Concerning the 2006 AP test administration, the result was statistically significant,  $\chi^2(8, N = 12,724) = 384.34, p < .001$ , Cramer's  $V = .12$ , small effect size (Cohen, 1992). A higher percentage of Hispanic students from Arizona (38.38%) earned scores of 3 or higher on the AP English Language and Composition exam than did California (22.21%) and Texas students (17.07%).

Frequencies and percentages of score distributions for the AP English Language and Composition Exam for Hispanic students from California, Texas, and Arizona for the 2007 through 2012 test administrations are presented in Table 3. For the 2007 AP test administration, the result of the comparison was statistically significant,  $\chi^2(8, N = 15,386) = 414.41, p < .001$ , Cramer's  $V = .12$ , small effect size (Cohen, 1992). A slightly higher percentage of Hispanic students from California (30.56%) earned scores of 3 or higher compared with Arizona (25.77%) and Texas (23.06%). Concerning the 2008 AP test administration, the result was statistically significant,  $\chi^2(8, N = 16,587) = 396.56, p < .001$ , Cramer's  $V = .11$ , small effect size (Cohen, 1992). Once again, a slightly higher percentage of Hispanic students from Arizona (32.12%) earned scores of 3 or higher on the AP English Language and Composition exam compared with California (31.29%) and Texas (24.18%). Regarding the 2009 AP test administration, the result was statistically significant,  $\chi^2(8, N = 19,049) = 447.31, p < .001$ , Cramer's  $V = .11$ , small effect size (Cohen, 1992). A slightly higher percentage of Hispanic students from California (33.13%) earned scores of 3 or higher compared with Arizona (28.61%) and Texas (26.71%). For the 2010 AP test administration, the result was statistically significant,  $\chi^2(8, N = 21,675) = 360.71, p < .001$ , Cramer's  $V = .09$ , trivial effect size (Cohen, 1992). A greater percentage of Hispanic students from Arizona (34.27%) and California (33.60%) received exam scores of 3 or higher compared with Texas (28.18%). Concerning the 2011 AP test administration, the result was statistically significant,  $\chi^2(8, N = 24,754) = 760.54, p < .001$ , Cramer's  $V = .12$ , small effect size (Cohen, 1992). California (36.65%) had a greater percentage of students earn a score of 3 or higher than did Arizona (33.82%) and Texas (26.86%). Finally, for the 2012 AP test administration, the comparison was statistically significant,  $\chi^2(8, N = 28,227) = 636.09, p < .001$ , Cramer's  $V = .11$ , small effect size (Cohen, 1992). California (36.38%) and Arizona (35.91%) had a greater percentage of students earn a score of 3 or higher than did Texas (28.58%).

**Table 3.** Frequencies and Percentages of Advanced Placement English Language and Composition Exam Scores for Hispanic Students for the 2007 Through the 2012 Test Administrations.

Year	Exam score	California	Texas	Arizona
		<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
2007	5	138 (1.76)	92 (1.31)	8 (1.55)
	4	529 (6.74)	335 (4.77)	32 (6.20)
	3	1,731 (22.06)	1,193 (16.98)	93 (18.02)
	2	3,793 (48.34)	2,880 (41.00)	226 (43.80)
	1	1,655 (21.09)	2,524 (35.93)	157 (30.43)
2008	5	176 (2.05)	93 (1.25)	17 (2.83)
	4	569 (6.64)	377 (5.08)	45 (7.49)
	3	1,937 (22.60)	1,324 (17.85)	131 (21.80)
	2	4,064 (47.42)	3,031 (40.87)	224 (37.27)
	1	1,824 (21.28)	2,591 (34.94)	184 (30.62)
2009	5	249 (2.46)	162 (1.98)	25 (3.25)
	4	750 (7.41)	489 (5.99)	52 (6.76)
	3	2,353 (23.26)	1,530 (18.74)	143 (18.60)
	2	4,547 (44.95)	3,048 (37.33)	337 (43.82)
	1	2,217 (21.92)	2,935 (35.95)	212 (27.57)
2010	5	286 (2.43)	204 (2.25)	26 (3.08)
	4	1,000 (8.51)	682 (7.51)	84 (9.96)
	3	2,663 (22.66)	1,673 (18.42)	179 (21.23)
	2	5,249 (44.67)	3,499 (38.53)	326 (38.67)
	1	2,553 (21.73)	3,023 (33.29)	228 (27.05)
2011	5	385 (2.86)	209 (2.04)	39 (3.81)
	4	1,166 (8.65)	625 (6.10)	86 (8.41)
	3	3,390 (25.14)	1,919 (18.72)	221 (21.60)
	2	5,949 (44.13)	3,949 (38.53)	435 (42.52)
	1	2,592 (19.23)	3,547 (34.61)	242 (23.66)
2012	5	388 (2.49)	239 (2.10)	40 (3.22)
	4	1,408 (9.04)	782 (6.86)	114 (9.18)
	3	3,872 (24.85)	2,238 (19.62)	292 (23.51)
	2	6,755 (43.35)	4,308 (37.78)	498 (40.10)
	1	3,158 (20.27)	3,837 (33.65)	298 (23.99)

In summary, all of the comparisons of AP English Language and Composition exam scores were statistically significant indicating that the distribution of exam scores earned by Hispanic students differed by state of residency. For 12 out of the 16 years of comparisons, Arizona had the highest

**Table 4.** Effect Sizes for the Comparison of Advanced Placement English Language and Composition Exam Scores for Hispanic Students From 1997 to 2012.

Year	Cramer's <i>V</i>	Effect size
1997	.07	Trivial
1998	.12	Small
1999	.10	Small
2000	.08	Trivial
2001	.05	Trivial
2002	.07	Trivial
2003	.08	Trivial
2004	.10	Small
2005	.10	Small
2006	.12	Small
2007	.12	Small
2008	.11	Small
2009	.11	Small
2010	.09	Trivial
2011	.12	Small
2012	.11	Small

percentage of Hispanic students earn a score of 3 or higher on the AP English Language and Composition exam scores. California had the highest percentage of students earn a 3 or higher for 4 out of the 16 years. Texas had the lowest percentage of Hispanic students earn a score of 3 or higher for each of the 16 years. Moreover, the practical significance was determined by examining effect sizes as measured by Cramer's *V* as shown in Table 4. Effect sizes for all years were either trivial or small and varied from a low of .05 to a high of .12. Moreover, the effect sizes for the differences were small and reflective of small differences in percentages of Hispanic students earning scores of 3 or higher. Readers should note that even though the effect size differences were small and reflective of small differences in percentages of Hispanic students earning scores of 3 or higher, these percentages were reflective of hundreds of students.

Table 5 includes the number of Hispanic students who took the AP English Language and Composition exam from California, Texas, and Arizona. The number of Hispanic students who took the AP English Language and Composition exam in each of the three states increased substantially during the 16-year period. Specifically, Arizona had the greatest rate of increase from 20 students who took the AP English Language and Composition exam

**Table 5.** Number of Hispanic Students Who Took the Advanced Placement English Language and Composition Exam by State From 1997 to 2012.

Year	California	Texas	Arizona
	<i>n</i>	<i>n</i>	<i>n</i>
1997	832	1,321	20
1998	1,000	2,025	37
1999	1,474	3,033	50
2000	2,072	3,750	61
2001	2,939	4,429	64
2002	3,638	4,844	95
2003	4,529	5,160	108
2004	5,269	5,696	150
2005	6,369	6,899	214
2006	6,438	6,045	241
2007	7,846	7,024	516
2008	8,570	7,416	601
2009	10,116	8,164	769
2010	11,751	9,081	843
2011	13,482	10,249	1,023
2012	15,581	11,404	1,242

in 1997 to 1,242 students who took the exam in 2012. This change represented a 6,110% increase. Similarly, the number of Hispanic examinees who took the AP English Language and Composition exam in California increased 1,773% from 832 students who took the exam in 1997 to 15,581 students in 2012. Finally, Texas had an increase in participation of approximately 763% from 1,321 students who took the exam in 1997 to 11,404 students who took the exam in 2012.

Another statistic used to compare the performance of Hispanic students from California, Texas, and Arizona was the average exam score. The average scores on the AP English Language and Composition exam for Hispanic students from California, Texas, and Arizona for each year from 1997 to 2012 are depicted in Table 6. From 1997 until 2006, Hispanic students from Arizona earned the highest average score on the AP English Language and Composition exam when compared with Hispanic students from California and Texas. However, Hispanic students from California outperformed their peers from Arizona and Texas from 2007 to 2012. Hispanic students from Texas earned the lowest average score for each of the 16 years of comparison. In general, the average scores earned by Hispanic students from California

**Table 6.** Means of Advanced Placement English Language and Composition Exam Scores for Hispanic Students by State From 1997 to 2012.

Year	California	Texas	Arizona
	M	M	M
1997	2.40	2.27	2.75
1998	2.33	2.08	3.05
1999	2.29	2.07	2.66
2000	2.15	1.98	2.52
2001	2.06	1.96	2.36
2002	2.10	1.99	2.64
2003	2.07	1.99	2.76
2004	2.07	1.92	2.66
2005	2.03	1.86	2.38
2006	2.02	1.80	2.44
2007	2.20	1.95	2.05
2008	2.21	1.97	2.15
2009	2.24	2.01	2.14
2010	2.25	2.07	2.23
2011	2.32	2.02	2.26
2012	2.30	2.06	2.28

and Texas on the AP English Language and Composition exam gradually declined until 2006 when scores began to increase slightly. In contrast, the average scores for Hispanic students from Arizona on the AP English Language and Composition have varied considerably during this period. For example, the average score ranged from a high of 3.05 in 1998 to a low of 2.05 in 2007.

### Research Question 2

For the second research question, the focus was on comparing the performance of Hispanic students from California, Texas, and Arizona on the AP English Literature and Composition exam for each test administration from 1997 through 2012. Frequencies and percentages of AP English Literature and Composition exam scores for Hispanic students from California, Texas, and Arizona are included in Table 7 for each administration from 1997 through 2001. The result of the comparison for 1997 was not statistically significant,  $\chi^2(8, N = 3,466) = 8.13, p = .42$ . In general, similar proportions of students from Arizona (40.67%), California (40.60%), and Texas (38.53%)

**Table 7.** Frequencies and Percentages of Advanced Placement English Literature and Composition Exam Scores for Hispanic Students for the 1997 Through the 2001 Test Administrations.

Year	Exam score	California	Texas	Arizona
		<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
1997	5	72 (3.45)	43 (3.42)	2 (1.69)
	4	217 (10.39)	113 (8.98)	14 (11.86)
	3	559 (26.76)	329 (26.13)	32 (27.12)
	2	823 (39.40)	495 (39.32)	53 (44.92)
	1	418 (20.01)	279 (22.16)	17 (14.41)
1998	5	66 (2.80)	33 (2.05)	6 (4.35)
	4	254 (10.76)	157 (9.75)	23 (16.67)
	3	624 (26.44)	396 (24.58)	40 (28.99)
	2	949 (40.21)	672 (41.71)	55 (39.86)
	1	467 (19.79)	353 (21.91)	14 (10.14)
1999	5	111 (4.13)	42 (2.18)	6 (4.58)
	4	240 (8.92)	159 (8.25)	19 (14.50)
	3	680 (25.28)	435 (22.57)	30 (22.90)
	2	1,144 (42.53)	851 (44.16)	51 (38.93)
	1	515 (19.14)	440 (22.83)	25 (19.08)
2000	5	72 (2.28)	44 (1.76)	4 (3.20)
	4	256 (8.12)	183 (7.32)	17 (13.60)
	3	767 (24.34)	534 (21.36)	45 (36.00)
	2	1,264 (40.11)	1,056 (42.24)	44 (35.20)
	1	792 (25.13)	683 (27.32)	15 (12.00)
2001	5	78 (2.15)	45 (1.70)	7 (5.43)
	4	277 (7.64)	160 (6.06)	19 (14.73)
	3	773 (21.32)	469 (17.77)	44 (34.11)
	2	1,711 (47.20)	1,304 (49.39)	44 (34.11)
	1	786 (21.68)	662 (25.08)	15 (11.63)

earned a score of 3 or higher on the AP English Literature and Composition exam. Regarding the 1998 test administration, the result was statistically significant,  $\chi^2(8, N = 4,109) = 21.65, p = .006$ , Cramer's  $V = .05$ , a trivial effect size (Cohen, 1992). A higher percentage of Hispanic students from Arizona (50.01%) earned a score of 3 or higher, compared with California (40.00%) and Texas (36.38%). For the 1999 AP test administration, the result was statistically significant,  $\chi^2(8, N = 4,748) = 31.15, p < .001$ , Cramer's  $V = .06$ , trivial effect size (Cohen, 1992). In 1999, 41.98% of Hispanic students from

Arizona who took the exam earned a score of 3 or higher compared with 38.33% from California and 33.00% from Texas. Concerning the 2000 AP test administration, the result was statistically significant,  $\chi^2(8, N = 5,776) = 37.76, p < .001$ , Cramer's  $V = .06$ , trivial effect size (Cohen, 1992). A larger percentage of Hispanic students from Arizona (52.80%) earned scores of 3 or higher compared with California (34.74%) and Texas (30.44%). For the 2001 AP test administration, the result was statistically significant,  $\chi^2(8, N = 6,394) = 69.11, p < .001$ , Cramer's  $V = .07$ , trivial effect size (Cohen, 1992). A greater percentage of Hispanic students from Arizona (54.27%) earned a score of 3 or higher compared with California (31.11%) and Texas (25.53%).

Frequencies and percentages of score distributions on the AP English Literature and Composition exam for Hispanic students from California, Texas, and Arizona for the 2002 through 2006 test administrations are presented in Table 8. For the 2002 AP test administration, the result was statistically significant,  $\chi^2(8, N = 7,235) = 63.56, p < .001$ , Cramer's  $V = .07$ , a trivial effect size (Cohen, 1992). A substantially higher percentage of Hispanic students from Arizona (43.33%) earned scores of 3 or higher compared with students from California (30.75%) and Texas (28.15%). Regarding the 2003 AP test administration, the result was statistically significant,  $\chi^2(8, N = 8,059) = 100.86, p < .001$ , Cramer's  $V = .08$ , trivial effect size (Cohen, 1992). Almost half (47.70%) of Hispanic students from Arizona earned scores of 3 or higher compared with 31.25% from California and 29.21% from Texas. For the 2004 AP test administration, the result was again statistically significant,  $\chi^2(8, N = 8,693) = 88.87, p < .001$ , Cramer's  $V = .07$ , trivial effect size (Cohen, 1992). A greater percentage of Hispanic students from Arizona (43.95%) earned a score of 3 or higher than did students from California (31.53%) and Texas (28.25%).

Regarding the 2005 AP test administration, the result was again statistically significant,  $\chi^2(8, N = 9,789) = 212.20, p < .001$ , Cramer's  $V = .10$ , small effect size (Cohen, 1992). A greater percentage of Hispanic students from Arizona (41.17%) earned scores of 3 or higher on the AP English Literature and Composition exam compared with students from California (31.75%) and Texas (25.95%). Concerning the 2006 AP test administration, the result was again statistically significant,  $\chi^2(8, N = 9,745) = 190.20, p < .001$ , Cramer's  $V = .10$ , small effect size (Cohen, 1992). A slightly higher percentage of Hispanic students from California (32.55%) earned scores of 3 or higher on the AP English Literature and Composition exam than did Arizona (30.21%) and Texas students (27.19%).

Frequencies and percentages of score distributions on the AP English Literature and Composition Exam for Hispanic students from California, Texas, and Arizona for the 2007 through 2012 test administrations are

**Table 8.** Frequencies and Percentages of Advanced Placement English Literature and Composition Exam Scores for Hispanic Students for the 2002 Through the 2006 Test Administrations.

Year	Exam score	California	Texas	Arizona
		<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
2002	5	72 (1.77)	38 (1.27)	8 (4.44)
	4	315 (7.76)	195 (6.50)	23 (12.78)
	3	861 (21.22)	611 (20.38)	47 (26.11)
	2	1,752 (43.18)	1,219 (40.66)	82 (45.56)
	1	1,057 (26.05)	935 (31.19)	20 (11.11)
2003	5	81 (1.71)	60 (1.91)	10 (5.13)
	4	339 (7.17)	215 (6.85)	17 (8.72)
	3	1,057 (22.37)	642 (20.45)	66 (33.85)
	2	2,274 (48.13)	1,338 (42.63)	80 (41.03)
	1	974 (20.61)	884 (28.16)	22 (11.28)
2004	5	97 (1.90)	50 (1.48)	9 (4.04)
	4	368 (7.22)	230 (6.82)	19 (8.52)
	3	1,142 (22.41)	673 (19.95)	70 (31.39)
	2	2,191 (42.99)	1,341 (39.75)	103 (46.19)
	1	1,298 (25.47)	1,080 (32.01)	22 (9.87)
2005	5	90 (1.60)	45 (1.16)	8 (2.94)
	4	387 (6.88)	222 (5.70)	33 (12.13)
	3	1,309 (23.27)	743 (19.09)	71 (26.10)
	2	2,613 (46.45)	1,548 (39.77)	110 (40.44)
	1	1,226 (21.80)	1,334 (34.28)	50 (18.38)
2006	5	81 (1.42)	56 (1.52)	6 (1.60)
	4	440 (7.72)	241 (6.56)	18 (4.81)
	3	1,334 (23.41)	702 (19.11)	89 (23.80)
	2	2,734 (47.98)	1,519 (41.36)	192 (51.34)
	1	1,109 (19.46)	1,155 (31.45)	69 (18.45)

presented in Table 9. For the 2007 AP test administration, the result of the comparison was statistically significant,  $\chi^2(8, N = 10,997) = 172.56, p < .001$ , Cramer's  $V = .09$ , trivial effect size (Cohen, 1992). A slightly higher percentage of Hispanic students from California (32.63%) earned scores of 3 or higher compared with Arizona (30.55%) and Texas (25.46%). Concerning the 2008 AP test administration, the result was again statistically significant,  $\chi^2(8, N = 12,862) = 327.91, p < .001$ , Cramer's  $V = .11$ , small effect size (Cohen, 1992). A higher percentage of Hispanic students from California (34.11%)



**Table 9.** Frequencies and Percentages of Advanced Placement English Literature and Composition Exam Scores for Hispanic Students for the 2006 Through the 2012 Test Administrations.

Year	Exam score	California	Texas	Arizona
		<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
2007	5	105 (1.67)	49 (1.14)	7 (1.67)
	4	474 (7.54)	246 (5.74)	35 (8.35)
	3	1,473 (23.42)	797 (18.58)	86 (20.53)
	2	3,010 (47.86)	1,909 (44.51)	200 (47.73)
	1	1,227 (19.51)	1,288 (30.03)	91 (21.72)
2008	5	125 (1.66)	44 (0.92)	4 (0.71)
	4	561 (7.45)	281 (5.89)	28 (5.00)
	3	1,883 (25.00)	925 (19.39)	116 (20.71)
	2	3,597 (47.76)	2,004 (42.00)	289 (51.61)
	1	1,365 (18.13)	1,517 (31.80)	123 (21.96)
2009	5	157 (1.89)	78 (1.56)	8 (1.19)
	4	692 (8.32)	321 (6.41)	49 (7.29)
	3	1,812 (21.79)	922 (18.40)	154 (22.92)
	2	4,009 (48.21)	2,172 (43.34)	252 (37.50)
	1	1,645 (19.78)	1,518 (30.29)	209 (31.10)
2010	5	174 (1.95)	93 (1.66)	13 (1.57)
	4	715 (8.01)	394 (7.03)	58 (7.00)
	3	1,959 (21.95)	1,016 (18.12)	179 (21.59)
	2	4,434 (49.68)	2,392 (42.67)	377 (45.48)
	1	1,643 (18.41)	1,711 (30.52)	202 (24.37)
2011	5	177 (1.74)	92 (1.46)	9 (1.06)
	4	781 (7.66)	368 (5.82)	62 (7.29)
	3	2,442 (23.95)	1,190 (18.83)	187 (21.97)
	2	4,971 (48.75)	2,658 (42.06)	403 (47.36)
	1	1,826 (17.91)	2,011 (31.82)	190 (22.33)
2012	5	210 (1.79)	87 (1.24)	16 (1.52)
	4	828 (7.05)	402 (5.73)	79 (7.49)
	3	2,732 (23.26)	1,241 (17.68)	232 (21.99)
	2	5,913 (50.35)	2,927 (41.72)	511 (48.44)
	1	2,061 (17.55)	2,358 (33.61)	217 (20.57)

earned scores of 3 or higher on the AP English Literature and Composition exam compared with Arizona (26.42%) and Texas (26.20%). Regarding the 2009 AP test administration, the result was statistically significant,  $\chi^2(8, N = 13,998) = 222.53, p < .001$ , Cramer's  $V = .09$ , trivial effect size (Cohen, 1992).

A greater percentage of Hispanic students from California (32.00%) and Arizona (31.40%) earned scores of 3 or higher on the AP English Literature and Composition Exam than did Hispanic students from Texas (26.37%).

For the 2010 AP test administration, the result was statistically significant,  $\chi^2(8, N = 15,360) = 286.95, p < .001$ , Cramer's  $V = .10$ , small effect size (Cohen, 1992). A slightly greater percentage of Hispanic students from California (31.91%) and Arizona (30.16%) received exam scores of 3 or higher compared with Texas (26.81%). Concerning the 2011 AP test administration, the result was statistically significant,  $\chi^2(8, N = 17,367) = 433.10, p < .001$ , Cramer's  $V = .11$ , small effect size (Cohen, 1992). California (33.35%) had a greater percentage of Hispanic students earn a score of 3 or higher than did Arizona (30.32%) and Texas (26.11%). Finally, for the 2012 AP test administration, the result was statistically significant,  $\chi^2(8, N = 19,814) = 643.60, p < .001$ , Cramer's  $V = .13$ , small effect size (Cohen, 1992). California (32.10%) and Arizona (31.00%) had a greater percentage of students earn a score of 3 or higher than did Texas (24.66%).

In summary, the comparisons of AP English Literature and Composition exam scores were statistically significant for 15 out of the 16 years indicating that the distribution of scores earned by Hispanic students differed by state of residency. From 1997 to 2005, Arizona had the highest percentage of Hispanic students earn a score of 3 or higher on the AP English Literature and Composition exam scores. From 2006 to 2012, California had the highest percentage of students earn a 3 or higher. Texas had the lowest percentage of Hispanic students earn a score of 3 or higher for each of the 16 years analyzed. Effect sizes for all years in which differences were statistically significant were trivial or small and varied from a low of .05 to a high of .13. Readers should note that even though the effect size differences were small and reflective of small differences in percentages of Hispanic students earning scores of 3 or higher, these percentages were reflective of hundreds of students.

Table 10 includes the number of Hispanic students who took the AP English Literature and Composition exam from California, Texas, and Arizona. The number of Hispanic students who took the AP English Literature and Composition exam in each of the three states increased substantially during the 16-year period. Specifically, Arizona had the greatest rate of increase from 118 students who took the AP English Literature and Composition exam in 1997 to 1,055 students who took the exam in 2012. This change represented an 888% increase. Similarly, the number of Hispanic examinees who took the AP English Literature and Composition exam in California increased 462% from 2,089 students in 1997 to 11,744 students in 2012. Finally, Texas had an increase in participation of 457% from 1,259 students who took the exam in 1997 to 7,015 students in 2012.

**Table 10.** Number of Hispanic Students Who Took the Advanced Placement English Literature and Composition Exam by State From 1997 to 2012.

Year	California	Texas	Arizona
	<i>n</i>	<i>n</i>	<i>n</i>
1997	2,089	1,259	118
1998	2,360	1,611	138
1999	2,690	1,927	131
2000	3,151	2,500	125
2001	3,625	2,640	129
2002	4,057	2,998	180
2003	4,725	3,139	195
2004	5,096	3,374	223
2005	5,625	3,892	272
2006	5,698	3,673	374
2007	6,289	4,289	419
2008	7,531	4,771	560
2009	8,315	5,011	672
2010	8,925	5,606	829
2011	10,197	6,319	851
2012	11,744	7,015	1,055

Another statistic used to compare the performance of Hispanic students from California, Texas, and Arizona was the average exam score. The average score on the AP English Literature and Composition exam for Hispanic students from California, Texas, and Arizona for each year from 1997 to 2012 are depicted in Table 11. For the 9 years from 1997 until 2005, Hispanic students from Arizona earned the highest average score on the AP English Literature and Composition exam when compared with Hispanic students from California and Texas. However, Hispanic students from California outperformed their peers from Arizona and Texas from 2006 to 2012. Hispanic students from Texas earned the lowest average score for each of the 16 years of comparison. In general, the average scores earned by Hispanic students from California gradually declined from 1997 until 2002. Since that time, the average score on the AP English Literature and Composition exam for Hispanic students in California has varied. In contrast, the average scores for Hispanic students from Arizona on the AP English Literature and Composition have varied considerably during this period. For example, the average exam score in Arizona has ranged from a high of 2.68 in 2001 to a low of 2.10 in 2009. Finally, the average scores on the AP English Literature and

**Table II.** Means of Advanced Placement English Literature and Composition Exam Scores for Hispanic Students by State From 1997 to 2012.

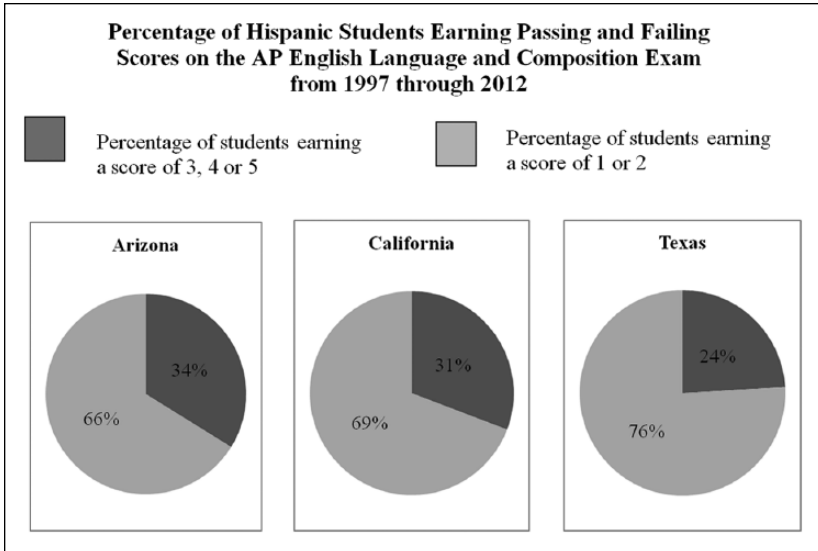
Year	California	Texas	Arizona
	M	M	M
1997	2.38	2.32	2.42
1998	2.37	2.28	2.65
1999	2.36	2.23	2.47
2000	2.22	2.14	2.61
2001	2.21	2.10	2.68
2002	2.16	2.06	2.54
2003	2.21	2.12	2.55
2004	2.17	2.06	2.51
2005	2.20	2.00	2.41
2006	2.24	2.05	2.20
2007	2.24	2.03	2.21
2008	2.27	2.02	2.11
2009	2.24	2.06	2.10
2010	2.25	2.07	2.16
2011	2.27	2.03	2.17
2012	2.25	1.99	2.21

Composition exam for Hispanic students from Texas have decreased from a high of 2.32 in 1997 to a low of 1.99 in 2012.

## Discussion

For 12 of the 16 years of comparisons, less than half of the Hispanic students from Arizona who took the AP English Language and Composition exam earned scores of 3 or higher. Moreover, little to no improvement was observed in passing rates on the AP English Language and Composition exam since 2002. Similarly, the percentage of Hispanic students from California who earned scores of 3 or higher decreased from 1997 through 2006 when that percent gradually began to increase. Hispanic students from Texas were the least likely to earn a score of 3 or higher on the AP English Language and Composition exam for each year from 1997 through 2012.

A graphical representation of the cumulative results for Hispanic students from Arizona, California, and Texas is provided in Figure 1. Specifically, 5,847 Hispanic students from Arizona took the AP English Language and Composition exam from 1997 through 2012. Of those students, only 34%



**Figure 1.** Cumulative percentage of Hispanic students from Arizona, California, and Texas who earned scores of 3, 4, or 5 compared with scores of 1 or 2 on the AP English Language and Composition exam from 1997 through 2012. Note. AP = advanced placement.

earned scores of 3, 4, or 5, regarded as a passing score. In contrast, 66% of the students earned scores of 1 or 2 and would not have received advanced credit or placement. Similarly, 98,069 Hispanic students from California took the AP English Language and Composition exam during the 16 years examined. Of those students, only 31% earned scores of 3, 4, or 5, regarded as a passing score. In contrast, 69% of the students earned scores of 1 or 2 and would not have received advanced credit or placement. Finally, for the 16 years of data analyzed, 92,151 Hispanic students from Texas took the AP English Language and Composition exam. Of those students, only 24% earned scores of 3, 4, or 5, regarded as a passing score. In contrast, 76% of the students earned scores of 1 or 2 and would not have received advanced credit or placement.

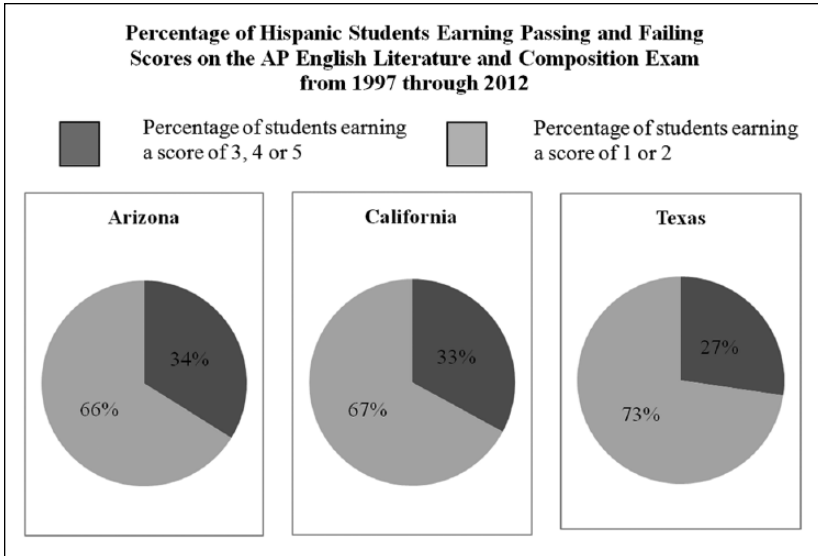
### *Summary of Results for the AP English Literature and Composition Exam*

For the first research question, the comparisons of AP English Literature and Composition exam scores were statistically significant for 15 out of the

16 years indicating that scores distributions for Hispanic students differed by state of residency. From 1997 to 2005, Arizona had the highest percentage of Hispanic students earn a score of 3 or higher on the AP English Literature and Composition exam scores. However, from 2006 to 2012, California had the highest percentage of students earn a score of 3 or higher on the AP English Literature and Composition exam. Texas had the lowest percentage of Hispanic students earn a score of 3 or higher for each of the 16 years of data analyzed. Effect sizes for all years in which differences were statistically significant were trivial or small and varied from a low of .05 to a high of .11.

We examined the percentage of Hispanic students from Arizona, California, and Texas who earned scores of 3 or higher on the AP English Literature and Composition exam for the 16 years from 1997 through 2012. For 14 of the 16 years of comparisons, less than 50% of Hispanic students from Arizona earned scores of 3 or higher. Passing rates among Hispanic students from Arizona on the AP English Literature and Composition exam have generally declined since 2001. For each of the 16 years of data analyzed, the majority of Hispanic students from California failed to earn a score of 3 or higher on the AP English Literature and Composition exam. Furthermore, the percentage of Hispanic students from California earning passing scores on the AP English Literature and Composition exam decreased from 1997 through 2002. Since that time, the percentage of students earning passing scores has remained relatively unchanged. Similarly, the majority of Hispanic students from Texas who took the AP English Language and Composition exam failed to earn a score of 3 or higher for each year from 1997 through 2012. In general, our examination of the trends in scores revealed a decline in passing rates from 1997 through 2012 with little variation.

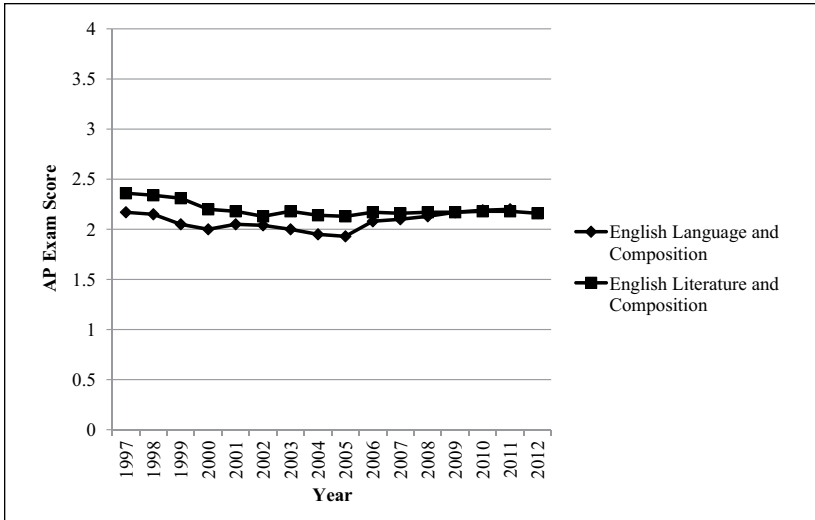
Figure 2 provides a graphical representation of the cumulative results of Hispanic students from Arizona, California, and Texas for the 16 years of data analyzed. From 1997 through 2012, 6,271 Hispanic students from Arizona took the AP English Literature and Composition exam. Of those students, only 34% earned scores of 3, 4, or 5, regarded as a passing score. In contrast, 66% of the students earned scores of 1 or 2 and would not have received advanced credit or placement. During the same period, 92,117 Hispanic students from California took the AP English Literature and Composition exam. Of those students, only 33% earned scores of 3, 4, or 5, which may be considered a passing score. In contrast, 67% of the students earned scores of 1 or 2 and would not have received advanced credit or placement. Finally, from 1997 through 2012, 60,024 Hispanic students from Texas took the AP Literature and Composition exam. Of those participants, 27% earned scores of 3, 4, or 5, which may be considered a passing score and result in AP of credit. Conversely, 73% of the students earned scores of 1 or 2.



**Figure 2.** Cumulative percentage of Hispanic students from Arizona who earned scores of 3, 4, or 5 compared with scores of 1 or 2 on the AP English Literature and Composition exam from 1997 through 2012.  
Note. AP = advanced placement.

### Comparison of Results for AP English Exams

The comparison of Hispanic student performance on the two AP English exams over 16 years revealed 31 statistically significant results. Furthermore, Hispanic students from Arizona outperformed their peers in California and Texas in 20 of the statistically significant comparisons. Hispanic students from California were the highest achievers in 11 of the statistically significant cases, and Hispanic students from Texas earned the lowest scores in all comparisons. Figure 3 provides a graphical representation comparing the average AP exam scores for Hispanic students from California, Texas, and Arizona on the AP English Language and Composition and the AP English Literature and Composition exams. Hispanic students performed better on the AP English Literature and Composition exam than on the AP English Language and Composition exam for each year from 1997 through 2010. However, in 2011 and 2012, Hispanic students performed slightly better on the English Language and Composition exam than on the English Literature and Composition exam.



**Figure 3.** Average AP English exam scores for all Hispanic students from Arizona, California, and Texas from 1997 through 2012.

Note. AP = advanced placement.

Finally, although statistically different distributions of exam scores were present between Arizona, California, and Texas, no attempt was made to determine why the distributions differed between the three states. Moreover, the results of Hispanic students were not compared with any other ethnic group. Determining specific reasons for these differences or comparing the achievement of Hispanic students with other ethnic groups are areas for future research.

## Relationship to Literature

The College Board (2011) asserted that improving college success for students who are low-income or ethnic minorities is critical to the nation's economic and social wellbeing. Burris and Welner (2005) attributed that the achievement gap between White and Hispanic students to a lack of Hispanic students' access to rigorous curriculum. Researchers (e.g., Dougherty et al., 2006; Geiser & Santelices, 2004; Murdock, 2006; Reid & Moore, 2008; Walker & Pearsall, 2012) have argued that participation in rigorous coursework such as AP classes in high school is essential for increasing college readiness and success.



The AP program was designed to provide high school students access to rigorous, college-level coursework (Mattern, Shaw, & Xiong, 2009). Several researchers (e.g., Dougherty et al., 2006; Ewing, 2006; Geiser & Santelices, 2004; Hargrove, Godin, & Dodd, 2008) have examined the relationship between student performance on AP exams and college outcomes. Hargrove et al. (2008) analyzed data on Hispanic students from Texas and concluded that students who participated in AP courses earned higher grades in college than did students who did not take AP courses. Dougherty et al. (2006) determined that students who were ethnic minorities who enrolled in AP courses, particularly those students who scored a 3 or higher on the exams, were more likely to earn a college degree within 5 years than were comparable students.

The College Board (2011) urged educators and policymakers to examine the success of students taking AP exams. Specifically, the College Board (2011) stated, "True equity is not achieved until the demographics of both AP classrooms and of the successful AP student population mirror the demographics of the nation" (p. 8). The College Board (2011) devised a formula for calculating equity and excellence in which the percent of a particular ethnicity represented in a graduating class is divided by the percent of students of that ethnicity within the graduating class who scored a 3 or better on at least one AP exam. The quotient represents the percent of progress toward achieving equity and excellence for a particular ethnic group. None of the three states examined in this study met the College Board's definition of equity and excellence for Hispanic students.

Despite the push by the College Board to increase participation in AP programs, several researchers (e.g., Klopfenstein, 2010; Lacy, 2010; Lichten, 2000, 2007, 2010; Sadler, 2010) have questioned the value of expanding the program. Specifically, Lichten (2010) argued that increasing participation in the AP program by underqualified candidates would result in a lower percentage of students earning qualifying scores. Moreover, Lichten (2000, 2007, 2010) predicted that rapid expansion of the program would result in a loss of respect for the program because of the decreasing program quality and increasing failure rates. In this study, Lichten's (2000, 2007, 2010) assertions were affirmed. Specifically, dramatic increases in the number of Hispanic students who took AP English exams in each of the three states were documented in the current study. In addition, the overall scores obtained by these groups of students generally declined during this 16-year period.

Some researchers (e.g., Dounay, 2006; Eyring, 2011; Palaich et al., 2006; Santoli, 2002) have suggested that accelerated learning options such as AP courses allow students to graduate from college in less time and thereby save money on college tuition. In contrast, Klopfenstein (2010) and Moore and

Slate (2011) argued that AP course-taking alone may not affect time to degree. The results of this study mirror the conclusions of Klopfenstein (2010) and Moore and Slate (2011). Specifically, the majority of Hispanic students who took AP English exams in California, Texas, and Arizona from 1997 through 2012 did not attain scores that would result in college credit or AP. Consequently, the majority of the students whose test scores were used for this study would not have graduated from college in less time or saved money on college tuition by earning credit for coursework based on their AP exam scores.

Lewin (2012) reported that federal funding for advanced high school programs, including AP and IB, was reduced by \$26 million in December 2011. Consequently, funds previously available to subsidize exam fees for economically disadvantaged students have been reduced. Some states and schools districts have reported that they will cover the cost of test fees for low-income students (Lewin, 2012). At a cost of \$87 per student per exam, it is important that students who take AP courses be adequately prepared to pass the AP exams.

## **Implications**

Several researchers (e.g., Klopfenstein & Thomas, 2009; Lacy, 2010; Lichten, 2000, 2007, 2010; Sadler, 2010) have questioned the push by the College Board as well as members of state and federal governments to increase participation in AP programs. The AP program emerged in 1957 as a means to alleviate the repetition in college coursework by highly qualified high school students (Dounay, 2006; Nugent & Karnes, 2002; Santoli, 2002). Since that time, student participation in the AP program has been used for a number of different purposes including college admissions decisions (Klopfenstein & Thomas, 2009; Miksch, 2008; Solórzano & Ornelas, 2004) as well as a measure of quality for high schools (Hacker, 2009).

The mission to provide access to AP for all students is an admirable one. However, placing underprepared students in AP courses is problematic (Klopfenstein & Thomas, 2009). Simply stated, if a student does not have prerequisite skills to succeed in college-level coursework, then placement in a rigorous college preparatory course may be beneficial for students as a means of developing fundamental academic skills and non-cognitive college readiness skills (Klopfenstein & Thomas, 2009). Therefore, educators should begin to examine prerequisite curriculum to determine if proper alignment exists to develop skills and knowledge necessary for student success in the most rigorous placement (Moore & Slate, 2010).

## Conclusion

Whereas the College Board and members of state and federal governments have pushed to increase participation in AP programs, other researchers (e.g., Klopfenstein & Thomas, 2009; Lacy, 2010; Lichten, 2000, 2007, 2010; Sadler, 2010) have questioned the benefit of placing underprepared students in AP courses. A student who is college ready is adequately prepared to be successful in college coursework (Cline, Bissell, Hafner, & Katz, 2007; Conley, 2007, 2008a, 2008b; Merisotis & Phipps, 2000; Spence, 2009), and AP courses are appropriate for all high school students who are college ready. However, individual students frequently present with varying degrees of readiness and require a rigorous high school curriculum that is aligned to the cognitive demands of college (Conley, 2008b; Wagner, 2008). Placing students who are not college ready in AP courses represents a missed opportunity for the students to develop prerequisite skills. Perhaps, the federal government's reduction of funding for advanced academic programs by \$26 million (Lewin, 2012) will provide an opportunity for school districts and states to consider other options for increasing college readiness of students. In reality, without greater focus on developing necessary skills and the provision of additional supports to improve the success rates of students, increasing participation in AP programs represents a waste of financial resources and missed opportunity to prepare students for college and beyond.

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