Incorporating Ninth-Grade PSAT/NMSQT® Scores into AP Potential™ Predictions for AP® European History and AP World History

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Introduction

Historically, AP Potential™ correlations and expectancy tables have been based on 10th- and 11th-grade PSAT/NMSQT® examinees and 11th- and 12th-grade AP® examinees for all subjects (Zhang, Patel, & Ewing, 2014; Ewing, Camara, & Millsap, 2006; Camara & Millsap, 1998). However, a large number of students take AP European History and AP World History Exams in 10th grade. The purpose of this addendum is to provide updated correlations and expectancy tables for AP European History and AP World History Exam scores that incorporate into the analyses students who took the PSAT/NMSQT in ninth grade and the AP Exam in 10th grade along with the other grade levels that have always formed the basis for the AP Potential predictions.

Sample

Analyses included students who took the PSAT/NMSQT in the fall of 2007 and 2008 and AP European History and AP World History Exams the following academic year in the spring of 2009 and 2010. For AP World History, 56,168 students completed the PSAT/NMSQT in ninth grade and took the AP World History Exam in 10th grade; whereas 28,774 students took the PSAT/NMSQT in 10th or 11th grade and the AP World History Exam in 11th or 12th grade. For AP European History, there were 18,874 students who completed the PSAT/NMSQT in ninth grade and took the AP European History Exam in 10th grade and 61,658 students who took the PSAT/NMSQT in 10th or 11th grade and then the AP European History Exam as 11th- or 12th-graders.

Data Analyses

The analyses involved calculation of descriptive statistics, correlation coefficients, and logistic regressions. A key question was examining whether the PSAT/NMSQT predictor previously chosen when ninth-grade PSAT/NMSQT scores were not included as reported by Zhang et al. (2014) was still the same or whether a different predictor was more appropriate. Once the PSAT/NMSQT predictor was selected, logistic regressions were computed using the combined data from all ninth-, 10th-, and 11th-grade PSAT/NMSQT examinees in order to produce the updated expectancy tables.

Results

Table 1 provides AP Exam scores and PSAT/NMSQT scores for students who took the PSAT/NMSQT in ninth grade and then completed either AP European History or AP World History Exams as 10th-graders. Table 2 contains correlation coefficients between AP Exam scores and PSAT/NMSQT scores based on ninth-grade PSAT/NMSQT examinees only, 10th- and 11th-grade PSAT/NMSQT examinees, and combined ninth-, 10th-, and 11th-grade examinees. For ninth-grade PSAT/NMSQT examinees, CR + M + W correlated the highest with scores on both the AP European History and AP World History Exams. The same result was found when data from PSAT/NMSQT examinees at all three grade levels (ninth, 10th, and 11th) were combined. For AP World History, the AP Potential tool previously used CR + M as the basis for the expectancy table, which is different from the PSAT/NMSQT predictor that was shown here to have the highest correlation with AP World

History Exam scores when ninth-grade data were considered. Keep in mind that the sample size for the ninth-grade PSAT/NMSQT examinees who took AP World History as 10th-graders was almost twice as large as the sample size for 10th- and 11th-grade PSAT/NMSQT examinees. Thus, the ninth-grade PSAT/NMSQT examinees are presumably more representative of the examinee population.

Table 1. AP Exam and PSAT/NMSQT Performance for Ninth-Grade PSAT/NMSQT Examinees

Score	N	Mean	SD
AP European History	18,874	2.67	1.32
PSAT/NMSQT Critical Reading	18,874	49.13	8.98
PSAT/NMSQT Math	18,874	50.45	9.09
PSAT/NMSQT Writing	18,874	47.98	9.12
AP World History	56,168	2.52	1.30
PSAT/NMSQT Critical Reading	56,168	46.69	9.11
PSAT/NMSQT Math	56,168	48.69	9.32
PSAT/NMSQT Writing	56,168	45.67	9.19

Table 2. Correlations Between PSAT/NMSQT Scores and AP European History and AP World History Exam Scores

Subject	N	Mean	SD	Correlation						
				CR	M	W	CR + M	CR + W	M + W	CR + M + W
Ninth Grade P/N Examinees Only										
AP European History	18,874	2.67	1.32	.610	.516	.554	.630	.622	.601	**.641**
AP World History	56,168	2.52	1.30	.627	.558	.570	.658	.640	.630	**.666**
10th- and 11th-Grade P/N Examinees (Current AP Potential Tool)										
AP European History	61,658	3.16	1.30	.604	.469	.523	.598	.599	.552	**.604**
AP World History	28,774	2.95	1.34	.624	.544	.552	**.643**	.621	.604	.642
All Ninth-, 10th-, and 11th-Grade P/N Examinees										
AP European History	80,532	3.05	1.32	.615	.499	.546	.615	.614	.577	**.621**
AP World History	84,942	2.66	1.33	.636	.567	.577	.661	.642	.630	**.664**

Note: Bold indicates highest correlation.

Finally, logistic regressions using CR + M + W composite scores as the predictor were modeled to predict the success of achieving an AP score of 3 or higher and 4 or higher. Logistic regressions were modeled using data from PSAT/NMSQT examinees in ninth, 10th, and 11th grade. Based on parameter estimates from the logistic regressions, the resulting expectancy tables were computed showing the PSAT/NMSQT cut scores associated with various probability levels of success on the AP European History and AP World History Exams. These expectancy tables are shown in Tables 3 and 4.

Table 3. AP European History Expectancy Table

AP European History

Probability (%)	PSAT/NMSQT CR + M + W Score	
	≥3	≥4
90	181	220
80	167	205
70	158	195
60	150	186
50	143	179
40	136	171
30	128	163
20	118	152
10	104	137
Total N = 80,532	56,888	29,852

Table 4. AP World History Expectancy Table.

AP World History

Probability (%)	PSAT/NMSQT CR + M + W Score	
	≥3	≥4
90	179	205
80	167	192
70	158	183
60	151	176
50	145	169
40	139	162
30	132	155
20	123	146
10	111	133
Total N = 84,942	43,677	23,995

References

Camara, W. J., & Millsap, R. E. (1998). *Using the PSAT/NMSQT and course grades in predicting success in the Advanced Placement Program* (College Board Research Report No. 98-4). New York: The College Board.

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