Preliminary Research Brief
Cohort 1 Student Knowledge
February, 2017

Key Finding: A preliminary analysis finds that students of teachers who took part in the James Madison Legacy Project Professional Development program scored higher on a test of civic knowledge than the control group. The difference in scores is larger for high school students than for middle school students.

Student Knowledge Analysis

Data collection on students for Cohort 1 of the James Madison Legacy Project (JMLP) is still in progress, as some teachers are implementing the We the People curriculum in their classrooms during the spring semester 2017 and will not administer the posttests until late May or June. This research brief provides a preliminary report of the student knowledge findings based on data that have been collected to date.

A multi-site, school-level quantitative evaluation of the JMLP is in process. The Cohort 1 evaluation involved 40 schools that were randomly assigned to the traditional PD group and 40 schools were randomly assigned to the "as is" control group. 34% of the participating schools are middle schools and 66% are high schools. The current study includes thirteen treatment and control middle schools and twenty-one treatment and control high schools from the seventeen of the twenty-six JMLP PD sites for which student data have been collected. Schools were included in this preliminary report if complete data have been collected on both the treatment and the control schools from a site.

Students took a knowledge pretest before they began their civics class and a posttest when they had completed the course. The evaluation tests students' knowledge of core concepts related to the U.S. Constitution, the institutions of government, and elections and voting. The items reflect those that are found on standard tests of civics and American government, and are not specifically aligned with the We the People curriculum. Separate grade-appropriate knowledge tests were administered to middle and high school students. The middle school test consists of twenty multiple choice and short answer items, and the high school test includes twenty-five questions. Additive indexes were created where one point was awarded for each correct answer. The test reliabilities are all higher than .700, and meet What Works Clearing House (WWC) standards (see Table 1).

Table 1
Reliability of Knowledge Measures

	Middle School	**High School**
Pretest	.783	.904
Posttest	.893	.964

Hierarchical linear models were estimated using analysis of covariance (ANCOVA) to determine if there is a statistically significant difference in knowledge scores of the middle school and high school students whose teachers had received the JMLP and students in the control group. Students' score on the posttest is the dependent variable. The pretest score is entered as a covariate in the model. PD/control group is entered as a fixed factor, and school is treated as a random factor. Effect size is measured by Hedges' g.

A total of 1,802 students are included in the middle school knowledge evaluation—1,133 in the PD group and 670 in the control group.[i] Scores on both the pretest and the posttest ranged from 1 to a perfect score of 20, which one student achieved on the pretest and ten students achieved on the posttest. As Table 2 depicts, the students in the JMLP group scored higher on the knowledge posttest than the students in the control group. The adjusted mean score for the JMLP group is 11.58 compared to 9.89 for the control group; the difference of 1.69 is statistically significant at p=.00. The effect size as determined by the Hedges' g of .16 is small.

A total of 1,413 high school students are included in the knowledge evaluation—676 in the PD group and 737 in the control group.[ii] The pretest and posttest scores range from 1 to 25, with twelve students achieving a perfect score on the pretest and 71 on the posttest. As Table 2 demonstrates, the students in the PD group had substantially higher mean scores on the posttest than students in the control group. The average adjusted mean score for the PD group is 18.84 compared to 13.34 for the control group; the difference is 5.50 and is statistically significant at p=.00. The effect size of .93 is very large.

Table 2
Estimated Mean Knowledge Scores of JMLP PD and Control Students

	n	Unadjusted $\overline{x}$	SD	Adjusted $\overline{x}$	SE	$\overline{x}$ Difference	p	Effect Size
Middle School								
PD	1133	11.02	4.39	11.58	.116	1.69	.00	.16
Control	670	10.89	4.25	9.89	.171			
High School								
PD	676	18.15	5.81	18.84	.339	5.50	.00	.93
Control	737	14.29	5.94	13.34	.386			

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[i] 14.8% of the middle school PD group and 13.3% of the control group left the study.
[ii] 22.5% of the high school PD group and 24.6% of the control group left the study.