PROJECT CITIZEN PRELIMINARY REPORT

YEAR ONE

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The Project Citizen Research Program (PCRP) evaluates the efficacy of the Center for Civic Education's Project Citizen (PC) curricular program for middle and high school students. The evaluation research was conducted by the Civic Education Research Lab (CERL) at Georgetown University under the direction of Dr. Diana Owen. CERL operates independently from the Center and is located on the Georgetown University campus in Washington, D.C. (https://cerl.georgetown.edu/).

Project Citizen is a widely used curriculum intervention that actively engages young people in cooperative, project-based learning as they work as a class to identify a problem in their community, research alternative policy-based solutions, develop a policy proposal to address the problem, and design a political action plan to convince public officials to adopt and implement the policy. PC also supports students' development of English Language Arts (ELA) and Science, Technology, Engineering, and Mathematics (STEM) knowledge and skills. The intervention includes a professional development (PD) program for teachers that increases their content knowledge, improves their capacity to effectively engage young people in PC, and increases their professional engagement with other educators.

This preliminary analysis provides findings on teacher and student outcomes resulting from their experience in Year One of the PCRP. The COVID-19 pandemic seriously disrupted the normal course of secondary school instruction. Despite the challenges, the Center proceeded with the first year of the PCRP. The teacher PD program was held entirely online during the summer of 2021. The majority of teachers (69%) implemented the Project Citizen curriculum intervention with their students virtually. Twenty-eight percent of teachers met with their students partially online and partially in-person or in a hybrid learning environment. Only 2% of teachers implemented the PC curriculum entirely in-person. Students presented their project portfolios—the culminating PC activity—primarily online to panels of community and government leaders. The unique circumstances of implementing PC during the pandemic presented challenges, especially as teachers and students adapted to virtual instruction and disruptions occurred due to COVID-related absences. At the same time, the pandemic provided an opportunity to evaluate the effectiveness of the program in a digital environment. The findings offer encouraging evidence that the PC curriculum can successfully be implemented either fully or partially in a virtual environment.

The Year One study was conducted during the academic year 2020-21. The quantitative impact evaluation of the PCRP employed a randomized control trial (RCT) that was designed to meet What Works Clearinghouse (WWC) evidence standards without reservations. The RCT design provided for randomized assignment of teachers and their students to intervention and control groups. Teachers were recruited through the Center's extensive network of teachers via personal outreach to their extensive contacts, advertising through education-related publications, and posting on social media. Qualified applicants were accredited public or private middle school teachers of civics, social studies, American government, or American history courses in which the PC program could be incorporated in the ensuing academic year. Teachers and their students were recruited for participation in the PCRP from middle and high schools nationwide. Attention was given to recruiting teachers from schools serving high-need and economically disadvantaged students to the program, although this was not a prerequisite for participation.

KEY FINDINGS

Teachers participating in the PCRP who received the Center's PD program demonstrated significant increases in civic knowledge compared to a control group. The PC teachers placed greater emphasis on pedagogies related to students' development of civic skills and dispositions after taking part in the PD program, including those that are pertinent to the development of SEL competencies.

- PCRP teachers' civic knowledge scores increased by 7.71 points from pretest to posttest compared to .33 points for the control group teachers.
- PCRP teachers scored an average of eight points higher on the knowledge posttest than the control group teachers.
- The emphasis teachers placed on the activities that were relevant to PC in their classroom increased significantly from pretest to posttest. The gains were greatest for directly engaging students in their community, having students work cooperatively with others to solve a problem, having students develop an action plan to solve a problem, and having student develop dispositions to become actively engaged in their community.

This study of Year One of the PCRP supports prior research showing that the curriculum intervention significantly increases students' attainment of civic knowledge, skills, and dispositions. The findings also demonstrate that the PC curriculum intervention significantly improves a range of social and emotional learning (SEL) competencies and STEM skills.

- Students who took part in the Project Citizen curriculum intervention gained significantly more content knowledge about government and the public policy process than students in the control group.
- The civic knowledge of Black, Latinx, Asian American and Pacific Islander (AAPI), and multiracial students increased significantly following their participation in Project Citizen.
- Project Citizen students' civic skills, which encompasses a range of SEL competencies, improved markedly due to the curriculum intervention. Their gains in civic skills were significantly larger than those of the control group.
- Project Citizen students became significantly more attentive to public policy issues following their participation in the program than students in the control group, although the gains were modest.
- Project Citizen students were more likely to report that they engaged in STEM-related activities than students in the control group. They made a connection between their math and science classes and their civics instruction.
- Students' qualitative evaluation of Project Citizen indicated that they found the program to be valuable for learning about the public policy process, teaching them skills that enhance their civic engagement, and making them realize that they can make a difference in their community.

TEACHER STUDY

Sixty teachers were recruited for inclusion in the study, with 30 teachers randomly assigned each of the PC intervention and comparison group conditions. A total of 28 teachers in the PC intervention group and 23 teachers in the control group completed the teacher study. Intervention group teachers participated in a PC PD program that was offered online at five regional sites across the country. Their students received the PC curriculum intervention and were enrolled in the study. Control group teachers had no prior experience with PC, did not participate in the PC PD program, and taught students who were enrolled in standard civics, social studies, American government, and American history classes. Quantitative data were collected for teachers in the intervention and control groups through pretest/posttest surveys. Pretests were administered to the PC intervention group in June 2021, prior to the start of the summer PD program. Pretests were administered to the control group during the same time frame. The pretests consisted of two survey instruments—one instrument gathered information on the teachers' professional backgrounds, their school characteristics, the pedagogies they employed in the classroom, their self-efficacy, and their commitment to civics instructional goals and a second instrument measured civic knowledge. The posttests were administered to teachers in both the intervention and control groups at the conclusion of their classes. The knowledge tests were proctored by site coordinators, school administrators, and CERL staff.

Difference of means tests were performed to examine changes in the pretest and posttest scores on civic knowledge. In addition, hierarchical linear models were estimated using analysis of covariance (ANCOVA) to determine if there was a statistically significant difference in the scores of the intervention and control group teachers. ANCOVA was an appropriate model for this analysis as it adjusts for students' pretest scores. The dependent variables were students' posttest scores. Their pretest scores were entered as a covariate. Intervention/control group was treated as a fixed factor. Effect size was measure by Hedges' g. The adjusted means and unadjusted standard deviations were used in computing the effect sizes.[1] WWC's improvement index also was computed. The WWC improvement index represents "the percentile rank of the control group students who performed at the level of an average intervention group student."[2]

Teacher and School Characteristics

The education level of the PC and control group teachers was similar. A somewhat higher percentage of PC teachers (65%) held Master's degrees than control group teachers (60%). Thirty-one percent of control group teachers had a Bachelor's degree compared to 26% of those in the intervention group. The same percentage of teachers in both groups held law degrees (4%) and doctoral degrees (5%). On average, the control group teachers (14.4 years) had been civic educators for longer than the PC teachers (11.2 years). Control group teachers had worked at their current school for an average of 7.8 years compared to 7.1 years for the intervention group teachers. The same percentage of teachers in both groups considered themselves to be specialists in teaching English learners (8%) and special education students (6%). Five percent of PC teachers and 2% of control teachers instructed Native American students. One PC teacher worked with incarcerated students. (See Table 1.)

[1] What Works Clearinghouse, Procedures and Standards Handbook, version 4, pp. 13-14.

[2] What Works Clearinghouse Procedures and Standards Handbook, version 4, p. E11.

Table 1
Teacher Characteristics

	Project Citizen	Control
Highest Degree Earned		
Bachelor's Degree	26%	31%
Master's Degree	65%	60%
Law Degree	4%	4%
Doctoral Degree	5%	5%
Average Years Teaching		
Civics	11.2 Years	14.4 Years
Civics at Present School	7.1 Years	7.8 Years
English Learners	8%	8%
Special Education Students	6%	6%
Native American Students	5%	2%

A substantial percentage of teachers in the PD and control groups served high-need student populations. Fifty-eight percent of teachers in the PC group and 59% in the control group taught in Title I schools. An almost equal percentage of teachers in the PC and control groups were affiliated with Title I institutions. Nearly 80% of teachers in both groups taught a high percentage of high-need students defined as having at least 30% of students who are provided with free or reduced cost lunches, students living in poverty, minority students, students performing far below grade level, English language learners, students with disabilities, students who are homeless or in foster care, students served by rural local educational agencies, disconnected or migrant youth, and incarcerated youth. Ninety-six percent of both the intervention and control group teachers were from public schools. A higher percentage of PC teachers (26%) than control group teachers (17%) taught in rural schools. More control group teachers (36%) were situated in urban schools than PC teachers (27%). An equal percentage (47%) of teachers in both groups worked in suburban schools. (See Table 2.)

Table 2
School Characteristics

	Project Citizen	Control
Title I School	58%	59%
Public School	96%	96%
Private School	4%	4%
Rural	26%	17%
Urban	27%	36%
Suburban	47%	47%

Teachers' Civic Content Knowledge

Teachers' civic knowledge was measured using an index consisting of 46 multiple choice questions. The items tapped their general knowledge of the public policy process, federalism, branches of the U.S. government, government departments involved in the policy process, interest groups, and nongovernmental organizations. While these content areas are relevant to the PC curriculum, the items were not overly aligned with the intervention. The items were derived from questions from established civic knowledge inventories, such as the AP test, the National Assessment of Educational Progress (NAEP) Civics Assessment, and the evaluation of the James Madison Legacy Project (JMLP) by the author. All of these items have known reliability that meets WWC standards. The teachers' civic knowledge index was reliable (Cronbach's α pretest=.908, posttest=.879). The scores on the civic knowledge index ranged from seven to 39 on the pretest and sixteen to 40 on the posttest.

Teachers who received the PC PD score significantly higher on the posttest knowledge index than teachers in the control group. The mean score on the pretest baseline of the intervention group (26.25) was lower than that of the control group (27.56). The PD group's score on the posttest (33.96) was substantially higher than the control group's score (27.89). The adjusted posttest mean score for the PC group based on the ANCOVA analysis was 35.91 compared to 27.93 for the control group. The adjusted mean pre/post between group difference was 7.98, indicating that the intervention group scored 8 points higher, on average, on the posttest than the control group. The difference in mean posttest scores was statistically significant at $p \leq .01$. The effect size (Hedge's g) of 1.41 is large, which is reflected in the improvement index of 42%. (See Table 3 and Table 4.)

Table 3
Teacher Knowledge by Condition
Difference of Means

	n	Pretest $\bar{x}$	Pretest SD	Posttest $\bar{x}$	Posttest SD	$\bar{x}$ Diff.	Sign. Diff.
Project Citizen	28	26.25	8.50	33.96	5.19	7.71	.00
Control	23	27.56	6.10	27.89	6.18	.33	n.s.

Table 4
Teacher Knowledge by Condition
Adjusted Mean Difference and Effect Size

	Adjusted Posttest $\bar{x}$	Adjusted Posttest SE	Adjusted $\bar{x}$ Pre/Post Difference	p	Effect Size (Hedge's g)	Improvement Index (U3)
Project Citizen	35.91	.513	7.98	.00	1.41	42%
Control	27.93	.794				

Project Citizen Pedagogies

The PC PD program provided teachers with the pedagogic tools necessary to successfully implement the PC curriculum intervention in their classrooms. The PC teachers were asked on the pretest and posttest surveys to indicate how much emphasis (1 not much, 2 some, 3 a great deal) they placed on activities that were related to the curriculum. These included: 1) identifying issues and problems facing their community, 2) working cooperatively with others to solve a problem in their community, 3) learning about the public policy process, 4) researching a problem, 5) developing a plan of action for addressing a problem, 6) evaluating alternative solutions to a problem, 7) directly engaging in the community, 8) developing civic skills, 9) developing dispositions to become involved in community affairs, and 10) having students reflect on their learning experience. These activities are conducive to students' development of SEL competencies.

Table 5
Project Citizen Teacher Pedagogies

	Pretest $\bar{x}$	**Pretest SD**	**Posttest $\bar{x}$**	**Posttest SD**	**Pre/Post $\bar{x}$ Diff.**	**Sign. Diff.**
Identifying issues and problems facing their community	2.36	.70	2.58	.57	.22	.02
Working cooperatively with others to solve a problem in their community	2.04	.79	2.53	.57	.49	.00
Learning about the public policy process	2.24	.72	2.58	.53	.35	.00
Researching a problem	2.33	.70	2.65	.52	.33	.00
Developing a plan of action for addressing a problem	2.00	.67	2.45	.60	.45	.00
Evaluating alternative solutions to a problem	2.15	.65	2.51	.60	.36	.00
Directly engaging in their community	1.62	.73	2.25	.62	.64	.00
Developing civic skills	2.36	.65	2.67	.47	.31	.00
Developing dispositions to become involved in community affairs	1.96	.67	2.36	.62	.40	.00
Having students reflect on their learning experience	2.51	.60	2.62	.49	.11	.11

The emphasis teachers placed on the activities that were relevant to PC in their classroom increased significantly from pretest to posttest. The differences in the mean pretest/posttest scores were statistically significant at $p \leq .02$ or better with the exception of having students reflect on their learning experience, which approached statistical significance. The greatest improvement based on the mean difference scores was for directly engaging students in the community (.61), followed by students working cooperatively to solve a problem (.49), students developing an action plan (.45), students developing civic dispositions (.40), students evaluating alternative solutions (.36), students learning about the policy process (.35), students researching a problem (.33), students developing civic skills (.31), and students identifying issues and problems (.22). (See Table 5.)

STUDENT STUDY

Students whose teachers were enrolled in the PCRP—either the PC intervention or the control group—were enrolled in the research project. A total of 1,932 students participated in the study; 1,184 were in the PC intervention group and 748 were in the control group. Quantitative data for students were collected through pretest surveys administered prior to the start of their PC instruction (intervention group) or general civics (control group) class. Posttests were given to students at the conclusion of their PC or general civics instruction. The surveys were administered online during class periods and were proctored by teachers. This preliminary report provides findings for PCRP Year One students on measures of civic content knowledge, civic skills, and attention to issues. This preliminary report provides findings for PCRP Year One students on measures of content knowledge, civic skills, which includes SEL competencies, attention to issues, and STEM skills.

As was the case for the teacher study, difference of means tests were performed to examine changes in the pretest and posttest scores on knowledge, civic skills, and issue attention. In addition, hierarchical linear models were estimated using analysis of covariance (ANCOVA) to determine if there was a statistically significant difference in the scores of the intervention and control group students.

Student Participant Characteristics

There was a difference in the gender composition of the PC and the control group students. The intervention group consisted of 53% female, 45% male, and 2% gender non-binary students. The control group students included a higher percentage of males (55%) than females (44%), with 1% identifying as non-binary. The students participating in the PCRP study were racially and ethnically diverse. Overall, 8% of students identified as Asian American Pacific Islander (AAPI), 14% as Black, 17% as Latinx, 49% as White, and 12.4% as multiracial. The racial composition of the PC and the control group students was similar. (See Table 6.)

Table 6
Student Characteristics

	Project Citizen	Control
Gender		
Female	53%	44%
Male	45%	55%
Non-Binary/Another Gender	2%	1%
Race		
Asian American Pacific Islander	8%	8%
Black/African American	12%	16%
Latinx	18%	16%
White/Caucasian	51%	47%
Multiple Races	11%	13%

Civic Content Knowledge

Students' civic knowledge was based on twenty items relating to general knowledge of the public policy process, federalism, branches of the U.S. government, government departments involved in the policy process, interest groups, and nongovernmental organizations. All of these content areas are addressed by the Project Citizen curriculum. As was the case for the questions on the teacher instruments, the items were not overly aligned with the intervention and were based on established measures with known reliability. The civic knowledge items were combined into pretest and posttest indexes that were reliable (Cronbach's α pretest=.850, posttest=.871). The scores ranged from one to eighteen on the pretest and one to nineteen on the posttest.

Students who received the PC intervention gained significantly greater knowledge than students in the control condition. The pretest mean for the Project Citizen students was 6.41 and the posttest mean was 9.06, representing an average improvement of 2.65. The pretest/posttest difference was statistically significant at $p \leq .01$. The control group pretest score was 5.56 and the posttest score was 6.64 for an average difference of 1.08 which was statistically significant. (See Table 7.)

Table 7
Student Civic Knowledge by Condition
Difference of Means

	n	Pretest $\bar{x}$	Pretest SD	Posttest $\bar{x}$	Posttest SD	$\bar{x}$ Diff.	Sign. Diff.
Project Citizen	1,184	6.41	3.67	9.06	4.94	2.65	.00
Control	748	5.56	3.03	6.64	3.47	1.08	.00

The intervention and control group pretest scores were not equivalent at baseline, as the control group students had lower scores. The ANCOVA model estimating the difference between the groups adjusts for this nonequivalence at baseline. (See Table 8.) The adjusted

posttest mean was 8.84 for the Project Citizen students and 7.02 for the control group students, for difference of 1.82. The difference was statistically significant. The effect size (Hedge's g) was .41, was indicates a small to medium effect. The improvement index was 16%.

Table 8
Student Civic Knowledge by Condition
Adjusted Mean Difference and Effect Size

	Adjusted Posttest $\bar{x}$	Adjusted Posttest SE	Adjusted $\bar{x}$ Pre/Post Difference	p	Effect Size (Hedge's g)	Improvement Index (U3)
Project Citizen	8.84	.108	1.82	.00	.41	16%
Control	7.02	.136				

An analysis was performed of student knowledge based on students' racial/ethnic identities. (See Table 9.) PC students across all racial/ethnic groups gained significant content knowledge from the program. The average gains on the knowledge index from pretest to posttest were 2.47 points for Black students, 2.36 points for Latinx students, 3.67 points for AAPI students, 2.23 for White students, and 2.98 for multiracial students. All of the pretest/posttest mean differences for the PC students were statistically significant at $p \leq .01$. The increase in knowledge was significantly smaller across all racial/ethnic groups in the control condition than in the intervention condition. The pretest/posttest differences for Latinx (1.02), AAPI (1.61), White (.97), and multiracial (1.05) students in the control group were statistically significant. However, the pretest/posttest difference for Black students in the control group was small (.37) and nonsignificant.

Table 9
Student Civic Knowledge by Condition and Race
Difference of Means

	n	Pretest $\bar{x}$	Pretest SD	Posttest $\bar{x}$	Posttest SD	$\bar{x}$ Diff.	Sign. Diff.
Project Citizen							
Black	109	5.49	2.97	7.96	3.45	2.47	.00
Latinx	182	6.22	2.99	8.58	3.51	2.36	.00
AAPI	92	7.42	3.88	11.09	4.17	3.67	.00
White	640	6.78	3.71	9.01	3.94	2.23	.00
Multiracial	127	5.71	3.42	8.69	4.96	2.98	.00
Control							
Black	86	5.52	2.97	5.89	3.38	.37	n.s.
Latinx	83	4.91	2.47	5.93	3.64	1.02	.00
AAPI	63	5.72	3.36	7.36	4.06	1.61	.00
White	380	6.04	3.22	7.01	3.48	.97	.00
Multiracial	90	4.99	2.68	6.04	3.53	1.05	.00

An ANCOVA analysis was performed and indicates that the increase in knowledge for the PC students was larger than for the control students when pretest knowledge was a covariate in the model. (See Table 10.) AAPI students (9.54) who experienced PC had the highest adjusted posttest mean score followed by multiracial students (9.14), White students (8.66), Latinx students (8.58), and Black students (8.24).

Table 10
Student Civic Knowledge by Condition and Race (ANCOVA) Adjusted Mean Difference

	Adjusted Posttest $\bar{x}$	Adjusted Posttest SE
Project Citizen		
Black	8.24	.355
Latinx	8.58	.274
AAPI	9.54	.390
White	8.66	.147
Multiracial	9.14	.329
Control		
Black	6.78	.400
Latinx	6.45	.407
AAPI	7.54	.466
White	7.19	.190
Multiracial	6.98	.392

Civic Skills

Students' development of civic skills is a focal outcome of the PC curriculum intervention. Civic skills were measured by thirteen items asking students whether they were able to perform a variety of tasks if they faced a problem in their community. For each item, students could respond: "I definitely could," "I probably could," "I'm not sure if I could," "I probably could not," and "I definitely could not." Seven of these items tapped the ability to take action to solve a problem. These items asked if students would be able to: (1) identify the problem, (2) research the problem, (3) get other people to care about the problem, (4) work cooperatively with others to solve the problem, (5) develop a plan of action for addressing the problem, (6) evaluate alternative solutions to the problem, and (7) attend a meeting about the problem. These items were combined in an additive index of problem-solving skills (Cronbach's α pretest=.878, posttest=.844). The problem-solving index ranged from 1 (definitely could not) to 29 (definitely could). A second set of items measured students' ability to express and share their views, and indicated if they felt that they could: (1) express their views in front of a group of people, (2) write a letter to a local news outlet, (3) organize a petition, (4) contact a government official, (5) use social media to publicize the problem, and (6) use social media to organize people to take action to solve the problem. These measures were combined to form a civic expression index (Cronbach's α pretest=.892, posttest=.881) that ranged from 1 (definitely could not) to 25 (definitely could). Items in both of these indexes measure civic skills that are conducive to students' development of SEL competencies, especially their ability to work cooperatively on a problem, express themselves, and solve problems.

Civic Problem-Solving Skills

Students' civic problem-solving skills improved significantly due to their participation in PC. The percentage of students who felt that they had the skills to solve a problem in their community increased on each of the seven indicators. The percentage increases were greatest for the PC students for their ability to identify a problem, research a problem, work cooperatively with other people to solve a problem, develop a plan of action, and evaluate alternative solutions to a problem. The pretest/posttest differences were smaller for getting people to care about a community problem and attending a meeting about a problem. There was no consistent pattern of an increase in the control group students' perceptions of their problem-solving skills from pretest to posttest, and in some cases the percentages declined. (See Table 11.)

Table 11
Student Civic Problem-Solving Skills
Percentage of "Definitely Can" and "Probably Can" Responses
Pretest and Posttest by Condition

	Definitely Can		Probably Can		χ^2 Sign.
	Pretest	**Posttest**	**Pretest**	**Posttest**	**PD/Control**
Identify problem					
PD	31%	42%	36%	49%	.00
Control	32%	32%	47%	43%	.00
Research a problem					
PD	41%	46%	47%	43%	.00
Control	38%	37%	44%	41%	.00
Get people to care about a problem					
PD	16%	19%	42%	44%	.00
Control	18%	16%	38%	35%	.00
Work cooperatively to solve a problem					
PD	25%	35%	42%	47%	.00
Control	26%	24%	45%	41%	.00
Develop a plan of action					
PD	18%	25%	42%	48%	.00
Control	19%	18%	40%	40%	.00
Evaluate alternative solutions to a problem					
PD	20%	27%	43%	48%	.00
Control	21%	16%	41%	43%	.00
Attend a meeting about a problem					
PD	29%	30%	32%	36%	.00
Control	22%	22%	33%	31%	.00

The scores on the civic problem-solving skills index improved for students who took part in PC, while there was no change in scores from pretest to posttest for the control group students. (See Table 12.) The PC students' improvement on this index (pretest $\bar{x}$=21.49; posttest $\bar{x}$=21.92) was small (mean difference of .43) and statistically significant at p=.00.

Table 12
Student Civic Problem-Solving Skills by Condition
Difference of Means

	n	Pretest $\bar{x}$	Pretest SD	Posttest $\bar{x}$	Posttest SD	$\bar{x}$ Diff.	Sign. Diff.
Project Citizen	1,153	21.49	4.84	21.92	4.87	.43	.00
Control	748	20.37	5.35	20.31	5.36	.06	n.s.

An ANCOVA model was run to correct for the difference between the intervention and control group pretest scores at baseline. (See Table 13.) The PC students' adjusted posttest mean score of 21.77 was significantly higher than the control groups' score of 20.60, with an adjusted mean difference of 1.17. The Hedge's g measure of effect size was .23, indicating a small effect. The improvement index shows that there is a 9% difference in the percentile rank between the average PC student and an average student in the control group distribution.

Table 13
Student Civic Problem-Solving Skills by Condition
(ANCOVA) Adjusted Mean Difference and Effect Size

	Adjusted Posttest $\bar{x}$	Adjusted Posttest SE	Adjusted $\bar{x}$ Group Difference	p	Effect Size (Hedge's g)	Improvement Index
Project Citizen	21.77	.141	1.17	.00	.23	9%
Control	20.60	.177				

Civic Expression Skills

As was the case for problem-solving skills, evidence of the PC students' improvement on these measures was provided by an examination of percentages and mean differences between the pretest and posttest scores. The percentage of PC students reporting that they definitely or probably had the skills to express themselves in a variety of ways related to solving a community problem increased on all six of the indicators. The greatest percentage increases were for expressing their views in front of a group of people, writing a letter to a local news outlet, organizing a petition, and contacting a public official. The pretest/posttest percentage increase was smaller using social media to publicize a problem and for organizing people to take action to solve a problem. The percentage differences were small or nonexistent for these indicators for the control group students. (See Table 14.)

Table 14
Student Civic Expression Skills
Percentage of "Definitely Can" and "Probably Can" Responses
Pretest and Posttest by Condition

	Definitely Can		Probably Can		χ^2 Sign.
	Pretest	**Posttest**	**Pretest**	**Posttest**	**PD/Control**
Express views in front of a group of people					
Project Citizen	27%	30%	30%	35%	.00
Control	26%	21%	31%	31%	.00
Write a letter to a local news outlet					
Project Citizen	16%	21%	31%	37%	.00
Control	15%	14%	26%	28%	.00
Organize a petition					
Project Citizen	14%	20%	28%	33%	.00
Control	15%	15%	26%	26%	.00
Contact a government official					
Project Citizen	12%	18%	22%	31%	.00
Control	10%	11%	20%	22%	.00
Use social media to publicize a problem					
Project Citizen	32%	34%	31%	34%	.00
Control	29%	32%	28%	33%	.00
Use social media to organize action					
Project Citizen	28%	28%	30%	36%	.00
Control	29%	26%	26%	31%	.00

PC students' mean score on the civic expression skills index improved significantly from pretest ($\bar{x}$=14.37) to posttest ($\bar{x}$=16.76), with a mean difference of 2.38. The pretest/posttest average change in scores was lower for the control group students, who scored an average of 13.53 on the pretest and 14.09 on the posttest for a mean difference of 1.36, which was statistically significant. (See Table 15.)

Table 15
Student Civic Expression Skills by Condition
Difference of Means

	n	**Pretest $\bar{x}$**	**Pretest SD**	**Posttest $\bar{x}$**	**Posttest SD**	**$\bar{x}$ Diff.**	**Sign. Diff.**
Project Citizen	1,153	14.37	4.25	16.76	5.38	2.38	.00
Control	748	13.53	4.69	14.09	5.89	1.36	.00

The results of the ANCOVA analysis found that the adjusted posttest mean for the PC students was 16.91 compared to 15.14 for the control group students, which represented an adjusted mean difference between the groups of 1.77. The effect size of .316 was small to moderate, and the improvement index was 12%. (See Table 16.)

Table 16
Student Civic Expression Skills by Condition
(ANCOVA) Adjusted Mean Difference and Effect Size

	Adjusted Posttest $\bar{x}$	Adjusted Posttest SE	Adjusted $\bar{x}$ Group Difference	p	Effect Size (Hedge's g)	Improvement Index
Project Citizen	16.91	.168	1.77	.00	.316	12%
Control	15.14	.210				

Civic Skills Omnibus Index

A civic skills index consisting of all thirteen items was created. The measure ranged from 1 (definitely could not) to 49 (definitely could). The index was highly reliable, with a Cronbach's α of .919 for the pretest and .929 for the posttest. As indicated by the separate analyses of the PC students' civic problem-solving and expression skills, the scores on the combined index improved markedly after experiencing the curriculum. (See Table 17.) The PC students' pretest mean score was 34.87, their posttest score was 37.82, and the pretest/posttest difference was 2.95. The gain in skills was statistically significant at $p \leq .01$. The increase in the control group students' scores was smaller than that of the PC students who had received the intervention. Their pretest mean index score was 32.90, the posttest score was 34.25, and the mean difference was 1.35.

Table 17
Student Civic Skills by Condition
Difference of Means

	n	Pretest $\bar{x}$	Pretest SD	Posttest $\bar{x}$	Posttest SD	$\bar{x}$ Diff.	Sign. Diff.
Project Citizen	1,153	34.87	8.32	37.82	9.38	2.95	.00
Control	748	32.90	9.28	34.25	10.54	1.35	.00

The ANCOVA model that corrects for the difference between the intervention and control group pretest scores confirmed that the PC students' adjusted posttest mean score pf 37.49 was higher than the control group mean of 34.29. The adjusted mean pretest/posttest difference was 3.20, which was statistically significant at $p \leq .01$. The Hedge's g measure of effect size was .33, indicating a small to moderate effect. The improvement index was 13%. (See Table 18.)

Table 18
Student Civic Skills by Condition
(ANCOVA) Adjusted Mean Difference and Effect Size

	Adjusted Posttest $\bar{x}$	Adjusted Posttest SE	Adjusted $\bar{x}$ Pre/Post Difference	p	Effect Size (Hedge's g)	Improvement Index
Project Citizen	37.49	.284	3.20	.00	.33	13%
Control	34.29	.359				

Attention to Issues

Students' attention to issues was measured by an index consisting of three items: 1) How much attention do you pay to media about media about government and politics? 2) How much attention do you pay to issues that are affecting your community? 3) How much attention do you pay to issues that are affecting your school? The response categories for each item were "not much," "some," and "a lot." The index ranged from a low of 1 (not much attention) to a high of 7 (a lot of attention). The reliability of the index (Cronbach's α) was .555 for the pretest and .598 for the posttest.

The PC students became somewhat more likely to pay attention to issues following their participation in the program. (See Table 19.) The control group students were slightly more inclined to follow issues after their conventional civics class. Students in the intervention and control groups had the same pretest mean scores of 2.68 on the index. The index scores of the PC students (2.98) and the control group students (2.80) improved on the posttest. The pretest/posttest differences were statistically significant at $p \leq .01$. The ANCOVA analysis found a difference of .18 between the adjusted posttest mean scores of the intervention and control groups that was statistically significant. The effect size based on Hedge's g was small as was the improvement index score of 5%. (See Table 20.)

Table 19
Student Issue Attention by Condition
Difference of Means

	n	Pretest $\bar{x}$	Pretest SD	Posttest $\bar{x}$	Posttest SD	$\bar{x}$ Diff.	Sign. Diff.
Project Citizen	1,153	2.68	1.14	2.98	1.18	.30	.00
Control	748	2.68	1.15	2.80	1.16	.12	.00

Table 20
Student Issue Attention by Condition
Adjusted Mean Difference and Effect Size

	Adjusted Posttest $\bar{x}$	Adjusted Posttest SE	Adjusted $\bar{x}$ Pre/Post Difference	p	Effect Size (Hedge's g)	Improvement Index
Project Citizen	2.98	.04	.18	.00	.15	5%
Control	2.80	.32				

STEM Skills

The PC curriculum offers opportunities for students to acquire STEM skills as they research their policy problem and develop their solutions. STEM-related activities included students collecting data from surveys, performing rudimentary statistical analyses, and gathering scientific evidence that they used to support their arguments. Students provided exhibits that required the use of STEM skills in their project portfolios. The acquisition of STEM skills was measured on the pretest and posttest with the following items: 1) My knowledge of math and science helps me to understand policy issues; 2) I see a connection between my math and science classes and my social studies and history classes; 3) I can use my math skills to work on problems in my community; 4) I can use my science skills to work on problems in my community; and 5) I can use my skills with technology to work on problems in my community. A STEM index was created that combined these five measures. The index ranged from a low score of 1, indicating that students did not perceive a connection between STEM and civics to a high score of 20, indicating that students saw a strong link between STEM and civics. The index met WWC standards for reliability with a Cronbach's α of .855 for the pretest and .871 for the posttest.

PC students were more likely to report that they engaged in STEM-related activities than students in the control group. (See Table 21.) The pretest/posttest mean differences were not large for the PC group. The mean differences were statistically significant for students knowledge of math helping them to understand policy issues (.14), students seeing a connection between math and science and their social studies classes (.10), and using math skills to work on community problems (.06). The PC group mean differences approached statistical significance for using science skills and using technology skills to solve community problems. The mean differences were near zero or negative—indicating that they decreased from pretest to posttest—for the control group. The PC students' scores improved significantly on the STEM index from the pretest to the posttest. The mean pretest score was 12.45 which increased to 12.76, for a mean difference of .31 that was significant at $p \leq .01$. The average score on the STEM index actually decreased from pretest to posttest for the control group students from 12.69 to 12.47.

Table 21
Student STEM Skills by Condition
Difference of Means

	n	Pretest $\bar{x}$	Pretest SD	Posttest $\bar{x}$	Posttest SD	$\bar{x}$ Diff.	Sign. Diff.
Understand policy issues							
Project Citizen	1,153	3.15	1.03	3.29	1.05	.14	.03
Control	748	3.13	1.09	3.15	1.12	.02	n.s.
Connection to classes							
Project Citizen	1,153	3.27	1.09	3.37	1.10	.10	.00
Control	748	3.35	1.18	3.35	1.18	.00	n.s.
Use math skills							
Project Citizen	1,153	3.17	1.07	3.29	1.09	.06	.05
Control	748	3.27	1.12	3.13	1.14	-.14	.00
Use science skills							
Project Citizen	1,153	3.23	1.02	3.29	1.01	.05	.07
Control	748	3.28	1.07	3.21	1.09	-.07	.08
Use technology skills							
Project Citizen	1,153	3.62	1.00	3.67	1.02	.05	.07
Control	748	3.66	1.05	3.60	1.04	-.06	.09
STEM Index							
Project Citizen	1,153	12.45	4.19	12.76	4.31	.31	.01
Control	748	12.69	4.39	12.47	4.57	-.22	.11

Students' Evaluations of Project Citizen

Students were asked to provide qualitative evaluations of their experience with Project Citizen. Many students indicated that the program made them more aware of how the public policy process works. They realized that they could become involved and make a difference in their community. They noted that they had acquired skills, such as researching issues, teamwork, leadership, and public speaking. They gained a realistic perspective about what is involved in making change in a community, especially when officials are nonresponsive. Students also reported that they felt that Project Citizen was fun, especially during the pandemic when they appreciated having an active learning experience. A good number of students expressed gratitude toward their teachers for making the opportunity to participate in PC available to them. The following is a sample of student comments:

> After working on Project Citizen, I've learned what public policy is and what I can do to change it. I also know how to be a better leader from it. I learned the process of making an action plan and what to do when changing something.

I believe that Project Citizen was fun and helped me with politics. It also helped with my teamwork skills.

Although it was a lot of work, I think that the end result was good. It was fascinating to see how important each step of the project was in our final outcome.

As a citizen of the United States, you have a right to say what you think government should do about problems in your community. You also have a right to say what you think about problems in your state, the nation, and about international problems. You have the right to try to influence the decisions people in your government make about all of those problems.

I am glad I was able to take part in this activity, as it gave me much insight on how to contact government officials (even if we can't get a response), and I learned that changing policy, or attempting to change policy at least, is very difficult and requires a lot of preparing and planning.

I absolutely loved it. This was my favorite part of my day also I think my teacher that was helping us should get credit. She made it easy for us to understand and I love this program. I think every kid should get an opportunity to try this out and for them to get to address a problem in Project Citizen

Constructive criticism of Project Citizen offered by students focused primarily on the amount of work that the program involved. Students felt that the number of forms and paperwork was excessive and would have preferred to have more time focusing on identifying and working on solving the problem. The way that PC was implemented in the classroom seems to have made a difference in the students' experience. Evaluations of the program were less favorable in classes where PC was given little weight in the final grade or was limited to a Friday afternoon activity. Some students admitted that they disliked politics in general and were not inclined to fully commit to the project. At the same time, there were students whose views of the political process shifted after realizing that they could influence policy.