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UC Irvine Writing Project's Pathway to Academic Success Program

An Investing in Innovation (i3) Validation Grant Evaluation

Technical Report

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Contents

Exhibits

Introduction

The Pathway to Academic Success program of the University of California, Irvine's Writing Project (UCIWP) provides professional development for secondary English language arts and English language development teachers to improve English learners' academic language skills. This "Pathway Project" focuses on how to explicitly teach, model, and scaffold instruction in the cognitive strategies (thinking tools) that experienced readers and writers access when they analyze, interpret, and respond to complex texts. The Pathway Project has been the subject of multiple prior evaluations that have shown it impacts student academic outcomes (see, for example, Kim et al., 2011; Olson et al., 2012).

In 2014, with the support of an Investing in Innovation (i3) Validation grant, the UCIWP leveraged the Writing Project network[1] and began working with three other Southern California area Writing Project sites to replicate the Pathway Project. Until that time, only UCIWP program developers had offered it. The i3 grant also supported an independent evaluation—a cluster randomized controlled trial—to examine both program implementation and the impact of the program on teachers' instructional practices and student learning. Researchers at SRI Education conducted the independent evaluation, and this report presents the results.

This technical report begins with a discussion of the Pathway Project logic model in which key program components and intended outcomes are specified. Next is a description of the research design, including recruitment and randomization; site, teacher, and student samples; and data collection and analysis methods. We then present the findings on program implementation, teacher practice outcomes, and student learning outcomes. This technical report does not include interpretation of these findings.

The Pathway Project Logic Model

The Pathway Project is designed to change teachers' instructional practices in analytical reading and writing, with the goal of improving 7th- through 12th-grade English learner (EL) students' ability to read and write analytically and thereby improving their school success and persistence through college (Exhibit 1). To achieve these outcomes, the UCIWP developers offered the Pathway Project to one large Southern California district and simultaneously supported three other Southern California area Writing Project sites in building their capacity to implement Pathway. Together, the four Writing Project sites (UCIWP plus the three expansion sites) provided professional development for teachers in seven Southern California school districts. From the outset, Pathway developers understood that contextual factors, such as district curriculum and assessment policies, might influence implementation as well as teacher uptake. Here, we describe the program's theory of action in detail, beginning with the student outcomes.

Student learning outcomes

The Pathway Project seeks to increase (a) students' use of specific cognitive strategies (such as summarizing, making inferences, analyzing, interpreting, drawing conclusions, evaluating, assessing, revising, and reflecting) while reading and writing and (b) students' overall engagement in reading and writing. By the end of a year in a Pathway classroom, the expectation is that student performance on text-based analytical writing tasks will have improved. Given the

[1] The UCIWP is affiliated with the California Writing Project and the National Writing Project.

Common Core standards' emphasis on nonfiction text, Pathway focuses on developing students' skills reading and writing about literary nonfiction texts. The ultimate goal of developing these analytical reading and writing skills is to increase students' opportunities for success in college.

Teacher instructional practices

To achieve these student outcomes, teachers are expected to implement at least two extended Pathway-developed lessons or "tutorials"—one designed to teach students to use cognitive strategies for reading and writing and another designed to teach specific strategies for essay revision. Once students learn to use the cognitive strategies (the tutorial is taught in the fall), the idea is that teachers will reinforce their use throughout the year. In the spring of each year, teachers are expected to engage students in revising a multiple-draft essay. Finally, the Pathway Project seeks to increase the overall amount of instruction time teachers devote to writing and to reading complex text.

Key program components

To support teachers in making these changes in their practice, the Pathway Project provides professional development coupled with curricular units or "tutorials." Four key features define the program:

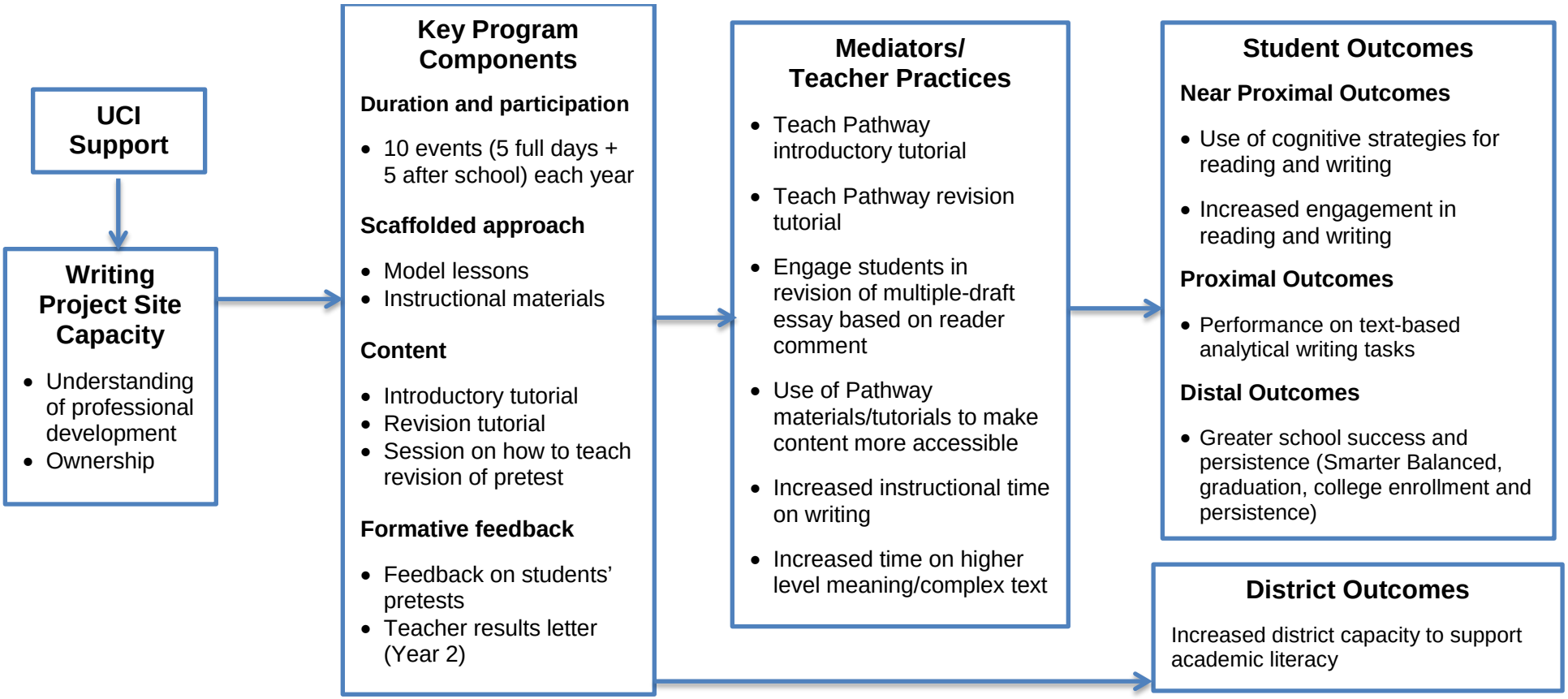
- *Teacher participation*. The Pathway Project is offered over 2 school years (including 5 full-day professional development events and 5 afterschool events each year). The rationale is that teachers need to have sufficiently intense professional development for it to have its intended effect on their instructional practice.

- *Content*. The program includes an introductory tutorial on cognitive strategies, a revision tutorial, and explicit directions for teachers to lead their classes through a multiple-draft revision process in both Year 1 and Year 2. Teaching students to use the cognitive strategies and revise their writing is at the core of the Pathway Project, so this content is essential to replication.

- *Scaffolding*. The Pathway Project is designed to support teachers' learning by modeling Pathway lessons for them during the full-day professional development events and to facilitate transfer to the classroom by providing ready-to-use instructional materials.

- *Formative feedback*. The Pathway Project requires teachers to administer a pretest at the beginning of each year and a posttest at the end of each year. The program then provides teachers with feedback on their students' pretest writing in Years 1 and 2. This program feature ensures that students are set up to engage in the multiple-draft revision process and provides teachers with guidance on next steps for their instruction. In the summer between Years 1 and 2, Year 1 students' writing (pre- and post-tests) is scored so that at the beginning of Year 2, teachers receive their students' scores from the prior year. The belief is that seeing growth from the pre- to post-tests demonstrates the efficacy of Pathway Project strategies and motivates teachers to implement the program with even greater fidelity in Year 2.

Exhibit 1. Pathway Project Logic model



UCIWP support for replication

To ensure that the expansion Writing Project sites understood the key program components and developed a sense of ownership for the Pathways Project, the UCIWP offered several types of support. First, leaders from all four sites met several times before project launch in fall 2014 to learn more about the arc of the Pathway Project and to discuss available supports. Then, over the course of the 2 years, site directors learned more about the details of the Pathways Project by observing the UCIWP-led professional development. In a few instances, the program developers visited the replication sites to deliver the professional development.[2] Finally, the UCIWP team provided extensive resources for the sites to use in delivering the professional development (e.g., agendas, presentation materials) as well as instructional materials (e.g., tutorials or scaffolded lessons) for them to give the teachers.

Importantly, by recruiting fellow members of the California and National Writing Project networks, the sites began their work together with preexisting relationships, substantial shared knowledge about writing instruction, and a common stance toward teacher professional development.[3]

State, district, and school context

From the outset, the Pathway Project developers understood that context would influence teacher participation as well as classroom implementation of Pathway strategies and lessons. For instance, the developers expected the stance district leaders took toward requiring or encouraging participation would influence both teacher participation and buy-in. Likewise, the extent to which teachers viewed the Pathway Project as aligned with other curricular priorities and curriculum and assessment policies and practices was expected to influence their classroom implementation of Pathway strategies and tutorials. Project developers also understood that teacher turnover and student mobility were likely to affect implementation of a 2-year program.

Research Design

The evaluation was a teacher-randomized controlled trial measuring the impact of Pathway on teachers' 7th- through 12th-grade English language arts (ELA) instructional practices and students' analytical writing achievement. The research team randomized teachers, together with the students in a single focal class, within school-by-grade blocks to provide better equivalence across baseline indicators of key outcomes and of contextual factors.[4] In Year 2, these randomized teachers' classrooms contained both students from the original sample and in-movers. While Pathway teachers implemented the program for the second time, some students experienced it for the first time, and others continued in it for a second year.

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[2] In Year 1, the program developer delivered the professional development once in one of the expansion sites. In Year 2, she delivered it twice in a different site. In the latter case, the expansion site director was also unable to observe the professional development as delivered by the program developer.

[3] A National Writing Project core principle is that "Teachers who are well informed and effective in their practice can be successful teachers of other teachers as well as partners in educational research, development, and implementation. Collectively, teacher-leaders are our greatest resource for educational reform" (National Writing Project, 2017, last bullet on website page).

[4] The research team had additionally hoped that randomizing within school-by-grade blocks would help the research design by allowing students to move from a focal classroom in Year 1 to a same-condition focal class in Year 2.

Our primary research questions were:

1. Was the Pathway program implemented with fidelity?
2. What impact did Pathway have on teacher practice after 1 and 2 years?
3. What impact did assignment to Pathway have on a holistic measure of students' analytical writing after 1 and 2 years when teachers were delivering the program for the first and second time?

In addition to these primary research questions were several exploratory research questions on student impacts:

4. What impact did Pathway have on students' analytical writing after 1 year of the program when teachers were delivering the program for the second time?
5. What impact did assignment to Pathway have on component measures of students' analytical writing (i.e., content, structure, sentence complexity, conventions)?
6. What impact did Pathway have on students' analytical writing for students experiencing the program for 2 consecutive years (i.e., what was the treatment-on-treated impact of Pathway after 2 years)?
7. Did Pathway have differential impacts on students' analytical writing for girls, English learners, or Latino students compared with boys, non-English learners, and White students?
8. What impact did Pathway have on students' state standardized test scores in ELA (i.e., on the Smarter Balanced assessment)?

Recruitment, randomization, and the counterfactual condition

UCIWP recruited three other Writing Project sites in Southern California. These Writing Project sites recruited districts in their service areas. Within these districts, each site recruited approximately 60 grade 7–12 ELA teachers to participate in the experiment.

Before randomization, SRI chose a Year 1 focal classroom for each teacher and collected rosters of the students enrolled. Teachers committed to implementing the intervention in this chosen focal class if was randomized into treatment. To assess the impact of the Pathway Project, SRI randomized approximately half the recruited teachers (and their classrooms) into treatment and half into control (delayed treatment). Control teachers were asked to maintain business-as-usual conditions and were offered a 1-year version of the program at the end of the study.

Randomization occurred within grade-level blocks. Wherever possible, the blocks consisted of school-by-grade groupings, although not all schools had multiple study teachers in the same grade. In these cases, we formed blocks across schools, although teachers were still within the same grade and district. We also had a single multigrade English language development (ELD) teacher in a block by herself.

The original research design was to measure an experimental effect of students' participation in the Pathway Project over 2 years by following them from their original focal class into a teacher's same-condition focal class in the second year. Participating districts committed to

keeping classes intact so that students randomly assigned to treatment or control in Year 1 would continue into a focal class for their assigned treatment status in Year 2. Writing Project sites provided a stipend to one counselor per school to be responsible for student assignment in support of the study design. However, most study teachers had Year 2 classes containing fewer than 50% continuing students and study classes contained students in the crossover condition (see below for detail). This lack of consistent assignment made for high attrition and crossover in the Year 2 continuing student sample, but the large number of students experiencing Pathway for the first time during the second year allowed for a third set of analyses, of the impact of Pathway on students experiencing the program for the first time when teachers were implementing for a second time. Therefore, we report Year 2 findings for two groups of students: (1) "continuing students," those from the Year 1 sample who were placed into a focal class for a second time in Year 2, and (2) "first-timers," students in a focal class for the first time in Year 2 while Pathway teachers implemented the program for the second time. Because the continuing student sample contained a high proportion of crossover students, we also provide a treatment-on-treated analysis for that sample.

Writing Project site and district samples

UCIWP recruited three additional Southern California Writing Project sites with (1) reach across the Southern California region, (2) experienced leadership, and (3) large numbers of English learners in their service areas. The four Writing Project sites in turn recruited districts in their service areas with high proportions of English learners in grades 7–12 and a desire to implement the Pathway Project. Three of the Writing Project sites recruited one K–12 school district each. The fourth Writing Project site partnered with four districts: two K–12 districts, one K–8 district, and one 9–12 district.[5] Although two of the sites had some experience working in the districts they recruited, none had worked on a cognitive strategies approach to writing with any of the participating districts.

Teacher sample

Local Writing Project sites worked with their partner districts to identify eligible teachers and target them for recruitment. To be eligible, teachers must have been the primary ELA/ELD teacher in at least one eligible ELA class in grades 7–12 and have made a 2-year commitment to the study. In addition, teachers agreed to implement the Pathway Project in their focal class and not to share Pathway materials with control teachers if randomized into the treatment condition. The randomly assigned teacher sample consisted of 230 secondary ELA and ELD teachers across grades 7–12.[6] No in-mover teachers were permitted into the study sample. Teacher attrition from the student impact analyses was 2% at the end of Year 1, 43% from the Year 2 continuing student analysis, and 29% for the Year 2 first-timer student analysis (Exhibit 2). While some teacher attrition from the Year 2 analyses was due to teachers leaving the districts or treatment condition, some was due to lack of student data (i.e., either no continuing students were placed into the teacher's class or the teacher did not return the data).

[5] The K–8 and 9–12 districts were both very small; in the two K–12 districts, Pathway participation was limited to three schools in one district and five schools in the other.

[6] In two cases of job sharing, the primary teacher was randomly assigned. As both job-sharing teachers ended up in the treatment group, the co-teacher was permitted to attend professional development along with the teammate but was not considered as part of the assigned sample.

Exhibit 2. Teacher Attrition by Year and Treatment Status

		Treatment	Control	Overall
Year 1				
	Assigned *n*	113	117	230
	Analytic *n*	112	113	225
	Attrition	1%	3%	2%
Year 2, Continuing				
	Assigned *n*	113	117	230
	Analytic *n*	64	66	130
	Attrition	43%	44%	43%
Year 2, First-timer				
	Assigned *n*	113	117	230
	Analytic *n*	88	75	163
	Attrition	22%	36%	29%

Note: Attrition provided for the primary research questions on the effects of student writing outcomes using an intent-to-treat sample.

Class and student samples

Before randomization, SRI chose a focal class for each teacher and collected rosters of students enrolled in these classes. Students enrolled in these Year 1 focal classes were randomized along with their teacher, creating the student sample for the Year 1 and Year 2 continuing student samples; no in-mover students were permitted into these two study samples. The Year 2 first-timer student sample consisted entirely of in-mover students who were placed into study classrooms approximately 1 year after randomization.

Class samples

SRI collected teachers' class assignments and associated student rosters and chose a focal class for each teacher from these lists before randomization for Year 1 and again in fall of Year 2. Eligible focal classes were ELA and ELD classes in grades 7–12, excluding any classes for which the writing assessment would be inappropriate (i.e., self-contained special education classes and self-contained ELD classes serving introductory English learner students[7]). We also excluded elective classes (e.g., journalism) and support classes that would not allow implementation of the Pathway Project (e.g., Read 180). Where possible, we avoided Advanced Placement (AP), International Baccalaureate, and ERWC (a writing curriculum from the California State University system) classes as they prescribe the material that needs to be covered or, in the case of ERWC, may be too similar to the treatment condition. However, we were not able to avoid all these classes and did choose some when necessary (e.g., one teacher taught only AP classes).

[7] The Pathway Project was designed for intermediate and advanced English learners. To ensure the program was implemented in appropriate classrooms, we excluded self-contained classes designed for students scoring 1–2 (Beginning and Early Intermediate) on the 5-point California English Language Development Test (CELDT). The CELDT has since been discontinued and replaced with the English Language Proficiency Assessments for California (ELPAC).

Student samples

In Year 1, the student sample was defined by enrollment in a randomly assigned class, according to rosters collected before randomization. In Year 2, continuing and first-timer students were moved into classes by school counselors who were aware of both teachers' and continuing students' treatment conditions. For the continuing student sample, these counselors had to balance their charge to maintain intact treatment conditions with competing scheduling demands. Thus, the Year 1 sample consisted of randomly assigned students with low attrition. The Year 2 continuing sample consisted of randomly assigned students but had high attrition, and the Year 2 first-timer sample consisted of in-moving students.

In describing the student samples, we focus on the samples for the primary impact estimates—the overall impacts on student writing for randomly assigned students who experienced the program for 1 and 2 years. For completeness, we also provide descriptive statistics on the overall first-timer sample.

Student sampling, attrition, and crossover

The primary confirmatory outcome for this study was a measure of student writing. Because scoring student writing is expensive, we randomly selected a subsample of students for scoring. Power estimates suggested that four students per focal class for each sample would provide minimum detectable effect sizes (MDES) of .15 or below for each analysis. We drew an independent sample for each analysis. That is, in each year we sampled according to the teacher of record to allow for an adequately powered study. Here, we describe the sampling strategy for each analysis, provide student attrition data for the two randomly assigned samples (Exhibit 3), and describe student crossover in the Year 2 continuing student sample (Exhibit 4).

Exhibit 3. Student Attrition by Year and Treatment Status

	Treatment	Control	Overall
Year 1			
Assigned *n* (via random sampling)	602	631	1,233
Analytic *n* (of students included in impact model)	447	447	894
Attrition	26%	29%	27%
Year 2, Continuing			
Assigned *n* (via student rosters)	3,105	3,202	6,307
Analytic *n* (of students available for sampling)	930	670	1,600
Attrition	70%	79%	75%

Note: Attrition provided for the primary research questions on the effects of student writing outcomes using an intent-to-treat sample. Assigned *n* excludes students whose teachers attrited from the study. Because the Year 2 first-timer student sample was not randomized at baseline, we do not provide attrition for it. The Year 2 continuing student sample assigned *n* excludes any students in 12th grade in Year 1 because they would be expected to graduate before Year 2 and those placed into an attrited focal class because these clusters are already accounted for in the teacher attrition numbers.

Year 1. As described, students were sampled within each teachers' classroom based on a roster of that classroom provided before randomization. To create an unbiased sample and provide an estimate of student attrition, we randomly sampled students from the pretest student population into an assigned sample without regard to whether they completed posttest writing. Random sampling was performed according to a number randomly assigned at baseline. The analytic sample therefore provides an unbiased sample of those students who remained in the sample between the beginning and end of the study.

To achieve the desired analytic sample size, we added to the assigned sample until we had four students per classroom in the analytic sample (i.e., with both pretest and posttest writing). The students in the assigned sample without posttest writing were considered attrition:

$$Attrition = \frac{N_{assigned\_sample} - N_{analytic\_sample}}{N_{assigned\_sample}}$$

Given that we aimed to sample four students per teacher, this approach should have produced an analytic sample of 448 in treatment and 452 in control. However, three of the 225 teachers did not have four students with complete pre- and post-test writing, leaving an analytic sample of 447 students in each condition. To achieve this analytic sample, we had to select 602 students in the treatment group and 631 students in the control group into the assigned sample. The study's student attrition was therefore 27% overall, 26% for treatment students, and 29% for control students.

Year 2 continuing students. The attempts to assign the Year 1 focal class students into the appropriate study condition focal classroom in Year 2 were only partially successful; a large proportion of Year 1 randomized students were assigned either to a nonfocal class or to a focal class in the opposite condition. Given that students were placed haphazardly into teachers' classrooms, we collected data based on student placement at the end of Year 2. We then sampled students with available pre- and post-test writing according to their classroom at the end of the school year. Thus, we calculated attrition more directly. However, while we retained the formula above, the assigned sample for the Year 2 continuing students was students identified on baseline rosters as being in grades 7–11. We excluded students identified as being in the focal classroom of a teacher who did not contribute any writing to the analytic sample as these students were already accounted for in the teacher attrition. The analytic sample in this instance was defined as the students whose writing was collected at both pre- and post-test and was therefore available to be sampled. As seen in Exhibits 2 and 3, attrition was high for both teacher and student samples in Year 2 because of student mobility and the difficulty of student placement in a focal classroom.

For most impact estimates, students were analyzed according to their originally assigned treatment condition regardless of the treatment experienced (an intent-to-treat estimate). To answer Research Question 6, examining the impact of students experiencing Pathway for 2 consecutive years, we censored crossover teachers and students for a treatment-on-treated (ToT) analysis (Jönsson et al., 2014). Crossover students were those who were assigned to one condition at baseline and placed in a Year 2 focal class of the opposite condition. Crossover teachers were those who did not continue in the treatment condition (defined, as in implementation fidelity, as attending at least four all-day professional development sessions). Exhibit 4 describes the resulting changes in sample size for the ToT analysis.

Exhibit 4. Year 2 Teacher and Student Crossover by Treatment Status

	ITT Sample, *n*	Censored from ToT Sample Due to:		Attrition from ITT Sample[A]	Remaining ToT Sample, *n*
		Teacher Crossover, *n*	Student Crossover, *n*		
Treatment					
Teachers	64	6	3	14%	55
Students	242	25	34	16%	183
Control					
Teachers	66	0	4	6%	62
Students	244	0	39	16%	205

[A] To avoid double counting students lost at the individual level, the student attrition from ITT sample uses the ITT sample minus students lost due to teacher crossover as the denominator.

Student demographics

Students in both treatment and control conditions were roughly equivalent across most demographic characteristics (e.g., English learner status and race/ethnicity) (Exhibit 5). In each sample, however, there were more girls than boys in the treatment condition. Accordingly, we included female students in our analysis of subgroup effects (described below) to ensure that the measured effects of Pathway were not driven by disproportionate impacts on female students.

Exhibit 5. Student Demographics (percent)

	Year 1		Year 2, Continuing		Year 2, First-Timers	
	Treatment	Control	Treatment	Control	Treatment	Control
EL[A]	13	14	11	17	9	13
EO	49	52	48	49	50	55
FEP	8	5	8	6	7	5
RFEP	27	24	33	27	26	19
Missing	3	5	0	1	8	8
Female	48	40	51	43	52	48
Missing	4	5	0	0	5	7
African American	2	2	1	2	3	2
Asian	7	9	7	5	10	8
Latino/a	66	62	74	72	61	63
White	19	19	17	19	20	21
Other	1	1	0	0	1	0
Missing	6	8	2	2	5	7
n	447	447	240	246	302	279

[A] EL = English learner; FEP = Fluent English proficient EO = English Only; RFEP = Redesignated English proficient.

Data and methods

The SRI evaluation team collected data from multiple sources to understand program implementation and assess outcomes. We examined program implementation across the four Writing Project sites, measured teacher practice through a survey, and assessed student learning with a study-administered on-demand student writing assessment.[8]

Program implementation

SRI worked with the Pathway Project developers to identify the key program components. We then developed indicators for each component to assess whether the program was implemented with fidelity across the sites. As described, the four key components are

- Duration and breadth of ***teacher participation*** in professional development
- ***Content*** of the teacher professional development
- ***Scaffolding*** approaches for teachers
- ***Formative feedback*** mechanisms.

To assess the fidelity of implementation, SRI collected information on teachers' participation in professional development and the features of the professional development and examined results against predetermined thresholds for each indicator. For example, we aggregated from the teacher level to the Writing Project site level to describe the proportion of teachers in each site attending a sufficient number of professional events to meet program requirements.

We worked with each participating Writing Project site to track teachers' attendance. Data from this tracking system enabled SRI analysts to calculate whether teachers attended a sufficient number of professional development events to meet the agreed-on thresholds (e.g., 90% of teachers participated in at least four of five full-day professional development events). We also reviewed other data sources, notably artifacts from the professional development (e.g., agendas, presentations, handouts) to determine the extent to which the sites provided the content and strategies for instructional delivery consistent with the Pathway model.

SRI evaluators also sought to understand the contrast between treatment and control teachers' professional development experiences. We included items on an annual teacher survey about professional development. The items asked about the hours spent in professional development on writing instruction and about the nature of the ELA-focused professional development teachers participated in. Specific items asked about whether the professional development supported Common Core implementation, focused on English learners, and reflected the key features of Pathway professional development (e.g., modeling instruction with teachers participating as learners, providing teachers with prepared lessons to implement, providing teachers with class sets of materials to support implementation). The survey also included questions on the extent to which the ELA-focused professional development emphasized Pathway-aligned approaches to reading and writing instruction (e.g., cognitive strategies and revision). Items describing this contrast were analyzed using the same methodology as that estimating impacts on teacher practice (see below).

[8] The SRI team also visited each site and gathered qualitative data through interviews with site directors, district and school leaders, and teachers (both treatment and control); professional development observations; and classroom observations, but we do not draw on the interviews and observations in this report.

Student learning outcomes

Writing data. SRI administered a 2-day writing assessment to all students in focal classrooms in the fall of Year 1 (baseline) and again in the spring of Years 1 and 2 (outcome).[9] On day 1 the prompts provided students with one literary nonfiction text to read and several activities designed to scaffold their analysis of the text. On day 2 students were asked to write an analysis of the text. One set of two prompts was administered in Year 1 and another set of two prompts was administered in Year 2. In each year, prompts were counterbalanced such that teachers were assigned one of two prompts in the fall and the other in the spring. In all but one district, teachers administered the Year 1 baseline prompt before learning of their randomization status and before the first professional development session.[10] Both the analytical reading and the text-based writing are aligned with Common Core standards, and the performance tasks are similar to those included on some state assessments (e.g., Connecticut) and the national consortia assessments (i.e., PARCC and Smarter Balanced).

The student writing was scored with the Analytic Writing Continuum for Literary Analysis (AWC-LA). Over a decade, the National Writing Project developed the Analytic Writing Continuum (AWC), which has been shown to be a valid and reliable measure of student writing (Bang, 2013). The original version of the AWC had been used primarily to score writing rooted in students' personal experience and therefore did not explicitly measure literary analysis. The National Writing Project worked with a panel of writing assessment experts to modify the AWC to more accurately score literary analysis, with a focus on the development of English learners' writing. The same panel of writing assessment experts selected and annotated anchor papers to be used in training scorers. The revisions to the AWC and the development of annotated anchor papers were intended to help make explicit for scorers how well-established attributes of effective writing are evident in literary analysis. The resulting AWC-LA retains a structure rooted in the "6+1 Traits" of writing (Culham, 2003) but concentrates on the attributes of literary analysis. Each paper was given a holistic rating as well as ratings on each of four attributes: content, structure, sentence fluency, and conventions.

Reliability of the prompt scoring was assessed separately for each writing attribute measure in the AWC-LA through the double scoring of a subset of papers. Researchers randomly selected approximately 10% of the papers to be double scored and calculated the percentage of papers for which individual scorers agreed within a score point for each attribute. A total of 595 papers were double scored. Raters agreed within a single score point for 90% of papers on the holistic score and structure attribute, 91% on the content attribute, 88% on the sentence fluency attribute, and 87% on the conventions attribute.

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[9] SRI did not initially plan to collect and score fall Year 2 data, as the original evaluation design relied on students remaining in intact classrooms through Year 2 and these students had fall Year 1 baseline data. When the design changed to include following the Year 2 first-timers (as the majority of students were experiencing the treatment in Year 2), SRI collected the fall Year 2 writing prompts administered by the local Writing Project Sites as part of the program. These data were used as baseline only, not outcome. As with the other three time points, SRI prepared these papers for blind scoring (described below).

[10] In one district because of the tight timeline between the beginning of the year and the first professional development session, teachers were notified of their treatment status 2 days before the first professional development session and administered the baseline prompt 2 working days later. We believe this time frame is too short to plausibly impact the baseline measurement of student writing (Schochet, 2008). Note also that the assignment to treatment and control was unaffected by the timing of the baseline measurements (i.e., student assignment was based on class rosters, which were collected before randomization decisions were announced).

For unbiased administration and scoring, local research site coordinators were hired and trained to support and monitor data collection in person in all schools and return the completed prompts to the research team. Researchers sampled student papers for scoring (described above) and then de-identified the samples by removing names or other identifying information and assigning an anonymized identification number. The de-identified papers were sent to the National Writing Project for scoring. Scorers therefore did not know the students' treatment status or the time when the paper was collected (pre- or post-test). Scorers were recruited from current and former teachers affiliated with local Writing Project sites not participating in the Pathway Project (to limit the potential for bias in scorers familiar with the program). Researchers monitored the scoring to ensure the National Writing Project followed impartial processes. Exhibit 6 provides descriptive statistics of student writing achievement on each of the AWC-LA's attributes by treatment condition.

Exhibit 6. Baseline and Outcome AWC-LA Scores, by Sample and Treatment Condition

	Baseline		Outcome	
	Treatment	Control	Treatment	Control
Year 1				
Holistic	2.7	2.8	3.4	3.0
(*SD*)	(1.1)	(1.1)	(1.2)	(1.2)
Content	2.7	2.7	3.4	3.0
(*SD*)	(1.1)	(1.2)	(1.2)	(1.2)
Conventions	2.9	3.0	3.5	3.2
(*SD*)	(1.2)	(1.2)	(1.3)	(1.2)
Sentence fluency	2.8	2.9	3.4	3.2
(*SD*)	(1.1)	(1.2)	(1.3)	(1.2)
Structure	2.6	2.7	3.3	3.0
(*SD*)	(1.1)	(1.2)	(1.2)	(1.2)
n	447	447	447	447
Year 2, Continuing				
Holistic	2.7	2.6	3.4	3.4
(*SD*)	(1.2)	(1.0)	(1.2)	(1.2)
Content	2.7	2.7	3.4	3.4
(*SD*)	(1.2)	(1.0)	(1.2)	(1.2)
Conventions	2.9	2.8	3.5	3.5
(*SD*)	(1.2)	(1.1)	(1.2)	(1.2)
Sentence fluency	2.8	2.7	3.5	3.5
(*SD*)	(1.2)	(1.1)	(1.2)	(1.1)
Structure	2.7	2.5	3.3	3.3
(*SD*)	(1.2)	(1.0)	(1.2)	(1.2)
n	240	246	240	246
Year 2, First-Timers				
Holistic	3.2	3.0	3.6	3.2
(*SD*)	(1.2)	(1.2)	(1.2)	(1.1)
Content	3.2	3.0	3.6	3.3
(*SD*)	(1.2)	(1.2)	(1.2)	(1.1)
Conventions	3.4	3.1	3.7	3.4
(*SD*)	(1.3)	(1.3)	(1.2)	(1.2)
Sentence fluency	3.3	3.1	3.6	3.4
(*SD*)	(1.2)	(1.2)	(1.2)	(1.2)
Structure	3.1	2.9	3.5	3.2
(*SD*)	(1.2)	(1.2)	(1.2)	(1.1)
n	302	279	302	279

State assessment data. As an additional measure of student achievement, we collected state ELA assessment data as available. California began administering the Smarter Balanced Assessment Consortium (SBAC) assessment in spring 2014 to students in grades 3–8 and 11. These data served as an additional exploratory outcome measure for students. As California did not require a standardized ELA assessment during the 2013–14 school year, we used the spring 2013 California Standards Assessment (CST) as a baseline measure for those students randomized at the study's onset. The spring 2015 SBAC served as the baseline measure for the Year 2 first-timer student analysis. Given the availability of both outcome and baseline data, these impacts were estimated for all students in grades 7–8 and 11 for the Year 1 sample, in grades 8 and 11 for the Year 2 continuing student sample, and in grades 7–8 for the Year 2 first-timer sample.[11]

Primary student impact estimates. The predicted writing ability for student *i* in teacher *j*'s classroom in blocking pair *k* as a function of being assigned to treatment is given as:

$$Y_{ijk} = \beta_0 + \beta_i(Treatment_k) + \beta_2(\overline{Pre-test_i}) + \boldsymbol{\sigma_k} + \epsilon_{ijk} + \mu_{jk} + \eta_k$$

Impacts were estimated separately for the holistic score and for each of the individual analytic scores, and estimates for Year 1, Year 2 first-timer, and Year 2 continuing student outcomes were run as separate models. District-fixed effects $\boldsymbol{\sigma_k}$ account for variation in policy or effects by district. Random effects ϵ_{ijk}, μ_{jk}, and η_k allow for error at the student, teacher, and block level, respectively. We included a control for student-level baseline achievement on the same baseline score (e.g., holistic AWC-LA baseline scores when predicting the holistic AWC-LA outcome). Student baseline and outcome scores were standardized within cohort and prompt form to account for prior achievement, cohort at baseline, and prompt effects. β_1 provides an estimate of the effect of teacher assignment to treatment on student writing performance (the intent-to-treat effect), standardized within the analytic sample.

We estimated these multilevel models using the Stata 14.2 *mixed* command. Models used restricted maximum likelihood estimation and the Kenward-Roger method to compute degrees of freedom for the models and calculate *p* values to adjust for sample sizes at the teacher and block level (Kenward & Roger, 1997; Schaalje, McBride, & Fellingham, 2002).

Before analyzing the data, SRI registered the planned research design with the National Evaluation of Investing in Innovation (NEi3). In this design, we had designated two confirmatory contrasts: impacts on students randomized in fall of Year 1 and after 1 and 2 years of program exposure on the holistic AWC-LA (the Year 1 and Year 2 continuing student samples). We provide a Benjamini-Hochberg correction for these two impact estimates to adjust for two confirmatory contrasts. All other impacts reported are considered exploratory, and *p* values for other impact estimates are not adjusted.

In addition to providing student-level descriptive statistics of pretest data for the analytic sample, we formally established baseline equivalence for the analytic sample by predicting the pretest data using the same structural model used to predict the outcome scores to estimate the treatment effect. For the three primary impact estimates—the effect of Pathway on the Year 1

[11] As noted, the baseline data for the Year 2 first-timer students' sample were from spring 2015. In that year, California administered the SBAC to grades 3–8 and 11. The 11th-grade Year 2 first-timers therefore were not included in the SBAC analysis because they did not have baseline data.

students, Year 2 continuing students, and Year 2 first-timers—these models predicted nonsignificant standardized baseline differences on the holistic AWC-LA of -.02, .12, and .11, respectively (all p values > .1).

Additional exploratory student impact estimates. Besides the impacts on Year 2 first-timer students and impacts on AWC-LA analytic scores, we provide several additional exploratory impact estimates. These exploratory impact estimates include a ToT estimate for the Year 2 continuing students, estimates for subgroups of students, and impacts on students using the SBAC assessment as an outcome. Impact models were estimated similarly to those above. For subgroup analyses, we provide only holistic AWC-LA as an impact outcome. For parsimony, we do not provide descriptive statistics for these analytic samples.

Given the high crossover in the Year 2 continuing sample, we conducted a ToT estimate to recover the impacts of Pathway on students who experienced it for 2 years. Crossover appeared unrelated to any baseline student or teacher characteristics for which we had data. Thus, we censored students at crossover without weighting or adjusting. Such an analysis may lose some statistical power because of a smaller number of students within teachers and may be subject to bias if crossover is driven by unobserved student characteristics (Jönsson et al., 2014).

To understand whether Pathway had differential impacts on subgroups of students on the AWC-LA, we ran three analyses: impacts for English learners compared with non-English learners,[12] for Latino students compared with White students, and for girls compared with boys. These models were similar to the student outcome models described above, although the analytic sample size changed (dropping to students with nonmissing data categorized into one of the two groups). In addition to the terms described in the model above, an indicator variable was included for the subgroup and an interaction term was included between the subgroup and treatment indicator.

Finally, we ran impacts on California's standardized ELA assessment, SBAC. SBAC and CST data were standardized within the analytic sample for each grade.

Teacher practice outcomes

Data. We measured teacher practice through a survey of treatment and control teachers in the spring of each year. The research team worked with the program developers to create a survey aligned with Pathway's theory of action, although we modified the survey content and adjusted the administration timing in Year 2.[13] The survey included items about teachers' allocation of instructional time, emphasis on cognitive strategies when teaching reading, emphasis on specific aspects of the writing process when teaching writing (e.g., developing a thesis statement, sentence craft and variety), and the use of various revision practices.

[12] English learners included both students currently receiving English learner services and those who had previously received services but had subsequently been redesignated as fluent English proficient. The reference group included both students who spoke only English and those with a second language who had never received English learner services.

[13] In Year 1 we administered the survey in early April. However, we learned that some teachers had not yet completed implementation of the full Pathway revision tutorial by that time of year. As a result, in Year 2, to capture more practices associated with Pathway, we administered the survey in late May.

Impact estimates. Models estimating teacher outcomes were similar to those estimating student impacts, although we omitted the student level and baseline covariate. The models also included grade and district-fixed effects.

Findings

Here, we describe our findings on program implementation (both fidelity and treatment-control contrast), teacher practice outcomes, and student learning outcomes.

Fidelity of program implementation

The Pathway Project was implemented largely as intended, although teacher participation fell short of predetermined thresholds in both years.

- For the ***teacher participation*** component, fidelity of implementation was defined as 90% of teachers participating in (a) at least four of the five full-day professional development events and (b) at least three of five afterschool professional development events. In Year 1 three sites met the threshold for full-day events, and two met the threshold for afterschool events. In Year 2 two sites met the participation threshold for full-day events, while the two others just missed the 90% mark (both with participation rates of 84%). No sites met the participation threshold for afterschool events in Year 2 (actual participation rates ranged from 76% to 84% of teachers attending at least three of five events).

- Fidelity of implementation for the ***content*** component was defined as presenting teachers with two Pathway tutorials that they were to implement in their classrooms—an introductory tutorial on cognitive strategies and a revision tutorial to teach students a process for revising their writing—and setting the expectation that teachers would take their students through the process of revising their own work (i.e., a multiple-draft essay). All four sites met implementation thresholds for content in both years.

- The ***scaffolding*** component involved modeling lessons for teachers, particularly the introductory and revision tutorials, and providing teachers with all the instructional materials they would need to go back to their classrooms and teach the Pathway lessons (including, for example, preprinted class sets of readings and handouts). Again, all sites met implementation thresholds for scaffolding in both years.

- In both Years 1 and 2, the ***formative feedback*** component involved the Writing Project sites providing (a) feedback on students' pretest writing and (b) end-of-Year 1 results on student growth in writing. To provide feedback on students' writing, all sites were to provide each teacher with full class sets of commented-on student papers to assist in the extended unit revision tutorial. Three of the four sites met this threshold in Year 1 and all four sites met it in Year 2. To provide teachers with end-of-Year 1 results, Writing Projects sites scored students pre- and post-test writing using a program-developed rubric closely aligned with the materials used in and skills targeted by the program, the Assessment of Literary Analysis. The sites then provided all teachers with data on their students' gains from the pre- to post-test in Year 1 in teacher results letters that teachers received at the beginning of Year 2. All sites met this threshold.

To further understand program implementation, we examined the contrast between treatment and control teachers' experiences with ELA-focused professional development. We found large, statistically significant differences between the treatment and control group in the amount, content, and scaffolding of the professional development received. In both Year 1 and Year 2, treatment teachers received an average of 30 hours more professional development than control teachers. Exhibit 7 presents data for Year 2, when treatment teachers reported receiving more ELA-focused professional development (41 hours) than control teachers (9 hours). Moreover, in both years, the Pathway teachers reported that the professional development they participated in had greater emphasis than control teachers' professional development on cognitive strategies in reading, such as making predictions about what will happen in a text, making connections with the author or a character in the text, visualizing characters or scenes in a text, and monitoring one's understanding while reading a text (Exhibit 8 presents data from Year 2; Year 1 findings were similar). The Pathway teachers also reported greater emphasis than control teachers on specific writing strategies and skills, such as balancing the use of summary, supporting detail, and commentary; composing a thesis statement or developing a claim; and sentence craft and variety (Exhibit 9 presents Year 2 data; Year 1 findings were similar). Finally, Pathway teachers were more likely than control teachers to report that the ELA-focused professional development they participated in included the scaffolding that is central to the Pathway model, such as providing teachers with prepared lessons and class sets of materials to support classroom implementation and analyzing student work to inform instruction (Exhibit 10 presents Year 2 data; Year 1 findings were similar).

Exhibit 7. Amount of Professional Development

Approximately how many hours of English language arts-focused professional development have you had this school year (2015-16)?	Treatment	Control		Teacher N
Hours of writing professional development received	41.39	8.52	***	166

*p < .05; **p < .01; ***p < .001.

Exhibit 8. Professional Development Emphasis on Cognitive Strategies in Reading

In the ELA-focused professional development, to what extent were the following reading strategies emphasized:	Treatment	Control		Teacher *N*
Establishing a goal before reading a particular text	3.57	3.05	**	146
Thinking about or discussing prior knowledge before reading	3.98	3.50	**	144
Making predictions about what will happen in a text	3.86	3.09	***	143
Making connections with the author or a character in a text	4.07	3.17	***	146
Summarizing main ideas or key points	3.79	3.56		146
Analyzing the meaning of a text to form individual interpretations	4.39	3.43	***	145
Identifying evidence to support interpretations of a text	4.43	3.78	***	143
Annotating a text one is reading to ask questions, make predictions, form interpretations, etc.	4.33	3.60	***	144
Visualizing characters or scenes in a text to create a mental picture of what is happening	3.82	2.92	***	146
Monitoring one's understanding while reading a text	3.83	3.18	***	146
Asking questions to clarify meaning when understanding breaks	3.71	3.11	***	146
Analyzing the author's style	3.79	2.85	***	146
Revising one’s interpretation of the text throughout the reading process	3.83	2.72	***	146

Note: Scale: 1 = No/ Almost no emphasis, 2 = Minor emphasis; 3 = Some emphasis; 4 = Significant emphasis; 5 = Heavy emphasis.
*p < .05; **p < .01; ***p < .001.

Exhibit 9. Professional Development Emphasis on Writing Strategies

In the ELA-focused professional development, to what extent were the following writing strategies and skills emphasized:				
	Treatment	**Control**		**Teacher *N***
Deconstructing a prompt	4.07	2.89	***	146
Prewriting or planning	3.96	2.92	***	146
Organizing a piece of writing	3.70	2.91	***	146
Composing a thesis statement or developing a claim	4.00	3.14	***	145
Using relevant facts, details, quotes, and examples in writing	4.17	3.29	***	145
Sentence craft and variety	3.34	2.41	***	145
Using academic language	3.41	3.25		146
Specific writing techniques	3.56	2.84	***	145
Balancing the use of summary, supporting detail, and commentary in an essay	3.80	2.62	***	145

Note: Scale: 1 = No/ Almost no emphasis, 2 = Minor emphasis; 3 = Some emphasis; 4 = Significant emphasis; 5 = Heavy emphasis.
*p < .05; **p < .01; ***p < .001.

Exhibit 10. Professional Development Characteristics (percent)

Did the ELA-focused professional development include the following: (Yes/No)				
	Treatment	**Control**		**Teacher *N***
Modeling instruction with teachers participating as learners	0.99	0.88	***	145
Providing teachers with class sets of materials to support implementation	0.88	0.24	***	145
Planning for classroom implementation	0.88	0.46	**	132
Analyzing student work to inform instruction	0.77	0.34	***	146
Providing teachers with prepared lessons to implement	0.77	0.14	***	145

Note: Stems were offered as "check all that apply" and analyzed as binary outcomes using multilevel logistic regression. Outcomes were transformed into percentage points for ease of interpretation and represent the predicted experience for the average teacher in the sample.
*p < .05; **p < .01; ***p < .001.

Teacher practice outcomes

The Pathway Project seeks to influence both the nature of teachers' instructional practices and the amount of time they spend teaching reading and writing. In Year 1, treatment teachers did report implementing the Pathway lessons (85% of treatment teachers reported using the cognitive strategies tutorial and 92% reported using the revision tutorial); however, treatment teachers did not report more Pathway-aligned teaching practices than control teachers.

In Year 2, when we administered the survey later in the spring, we found that although treatment and control teachers spent similar amounts of instructional time on reading and writing, treatment teachers were more likely than control teachers to focus that time on several (but not all) Pathway-aligned practices. We found more statistically significant contrasts in teachers' reports of writing instruction (Exhibit 11) than in their reports of reading instruction (Exhibit 12). Most notable is that Pathway teachers were more likely than control teachers to report teaching specific writing strategies and revision practices that are at the core of the Pathway program, such as how to deconstruct a writing prompt, compose a thesis statement or develop a claim, write a strong introduction, provide commentary on quotes and evidence from text, and balance the use of summary, detail, and commentary (Exhibit 11). However, also notable is that treatment teachers were not more likely than control teachers to report emphasizing using relevant supporting information in writing, sentence craft and variety, writing a strong conclusion, and converting informal language to formal, all also core Pathway practices.

Exhibit 11. Teacher Practice: Use of Writing Instructional Strategies

How often did you teach the following writing strategies or skills in 2015-16 to your focal class:				
	Treatment	**Control**		**Teacher *N***
Deconstructing a prompt	4.42	3.93	***	168
Prewriting or planning	4.18	4.12		168
Organizing a piece of writing	4.31	4.26		168
Developing a claim and/or composing a thesis	4.72	4.45	**	168
Writing a strong introduction	4.49	4.02	***	169
Using relevant facts, details, quotes, and examples in writing	4.48	4.53		168
Providing commentary on significance of quotes or evidence from text	4.38	4.11	*	168
Checking for a balance of summary, supporting detail, and commentary in an essay	3.86	3.45	**	167
Attending to sentence craft and variety	2.83	2.67		169
Considering specific writing techniques	3.66	3.71		168
Writing a strong conclusion	3.59	3.38		169
Proofreading and editing for grammar and correctness	3.44	3.52		169
Converting informal language to formal academic language	3.39	3.40		169
Engaging students in analyzing their own work	3.73	3.49		168

Note: Scale: 1=No or almost no emphasis, 2=Minor emphasis, 3=Some emphasis, 4=Significant emphasis, 5=Heavy emphasis.
*p < .05; **p < .01; ***p < .001.

Exhibit 12. Teacher Practice: Use of Reading Instructional Strategies

When teaching reading, to what extent have you emphasized the following strategies in your focal class in 2015-16:				
	Treatment	**Control**		**Teacher *N***
Establishing a goal before reading a particular text	3.62	3.77		169
Thinking about or discussing prior knowledge before reading	3.81	3.87		167
Making predictions about what will happen in a text	3.87	3.61		169
Making connections with the author or a character in the text	3.93	3.85		169
Summarizing main ideas or key points	4.05	4.20		168
Analyzing the meaning of a text to form individual interpretations	4.72	4.57		169
Identifying evidence to support interpretations of a text	4.65	4.61		169
Annotating a text to ask questions, make predictions, form interpretations, etc.	4.65	4.55		168
Visualizing characters or scenes in a text to create a mental picture of what is happening	3.45	3.11	*	169
Monitoring one's understanding while reading a text	3.79	3.92		168
Asking questions to clarify meaning when understanding breaks down	3.99	4.01		169
Asking questions to facilitate discussion	4.12	4.16		167
Analyzing author style	4.13	3.83	*	169
Analyzing one's initial interpretations of a text to determine if those interpretations need to be changed or modified	3.80	3.47	*	169

Note: Scale: 1=No or almost no emphasis, 2=Minor emphasis, 3=Some emphasis, 4=Significant emphasis, 5=Heavy emphasis.
*p < .05; **p < .01; ***p < .001.

Student learning outcomes

At the end of Year 1, the Pathway Project increased the performance of students in the treatment group nearly a third of a standard deviation more than that of students in the control group (Exhibit 13) ($p < .001$). Results were positive and statistically significant for not only the holistic score, but also all five of the analytic scores. Impacts for the randomized students continuing onto a second year of treatment were no longer significant for any of these measures by the end of the second year (Exhibit 13) ($p > .1$).

At the end of Year 2, Pathway improved the writing performance of first-timer students by nearly a quarter of a standard deviation more than that of students in the control group (Exhibit 13) ($p < .001$). Results were positive and statistically significant for the holistic, content, and structure scores; marginally significant for the conventions score; and not significant for the sentence fluency score.

Exhibit 13. Impacts on AWC-LA, in Effect Sizes

	Point Estimate		*p* value	(*SE*)	*df*	Block *n*	Teacher *n*	Student *n*
Year 1								
Holistic[A]	0.32	***	0.00	(0.06)	163	81	225	894
Content	0.31	***	0.00	(0.07)	163	81	225	894
Structure	0.29	***	0.00	(0.07)	163	81	225	894
Sentence Fluency	0.27	***	0.00	(0.07)	163	81	225	894
Conventions	0.32	***	0.00	(0.07)	163	81	225	894
Year 2, Continuing								
Holistic[A]	0.03		0.72	(0.09)	218	61	130	486
Content	0.05		0.60	(0.09)	220	61	130	486
Structure	0.04		0.67	(0.09)	217	61	130	486
Sentence Fluency	0.01		0.89	(0.09)	205	61	130	486
Conventions	-0.02		0.79	(0.09)	218	61	130	486
Year 2, First-timers								
Holistic	0.24	**	0.01	(0.09)	121	75	163	581
Content	0.24	*	0.01	(0.09)	121	75	163	581
Structure	0.22	*	0.01	(0.09)	121	75	163	581
Sentence Fluency	0.13		0.13	(0.08)	121	75	163	581
Conventions	0.14	~	0.10	(0.08)	122	75	163	581

[A] Confirmatory contrasts; significance levels represented by asterisks are unchanged by Benjamini-Hochberg multiple comparison correction.
~$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

Year 2 continuing student treatment-on-treated impacts. The estimated intent-to-treat impact on Year 2 continuing students may have been affected by crossover in the sample. The models predicting the holistic AWC-LA using the ToT models estimated an impact of .19 after 2 years of program exposure, which is marginally statistically significant ($p < .1$).

Impacts on subgroups. We found no evidence that Pathway had differential effects by English learner status, gender, or ethnicity (Exhibit 14). In Year 1 impacts were positive and

statistically significant for both groups in each model. Tests of difference between the two effect sizes found no evidence of difference between the impacts for any of the subgroups. In Year 2 standard errors were larger, making estimations of results less precise. No tests of significance for group impacts or differential impacts were statistically significant for the Year 2 continuing student sample. We found Pathway to have positive and at least marginally significant effects on girls, English learners, and White students in the Year 2 first-timer sample. While the estimated impacts on boys, non-English learners, and Latino students were not statistically significant, we could not reject the null hypotheses that these effects were similar for any of the subgroups.

Exhibit 14. Impacts on AWC-LA for Subgroups, in Effect Sizes

	Year 1		Year 2, Continuing	Year 2, First-timer	
Gender					
Effects for boys	0.31	***	0.10	0.18	
(*SE*)	(0.09)		(0.12)	(0.12)	
Effects for girls	0.30	**	-0.08	0.21	~
(*SE*)	(0.09)		(0.13)	(0.12)	
Difference in effects between boys & girls	-0.02		-0.18	0.04	
(*SE*)	(0.12)		(0.17)	(0.15)	
Student *n*/ Teacher *n*	856/222		486/130	548/155	
English Learners					
Effects for EL students	0.38	***	0.04	0.15	
(*SE*)	(0.12)		(0.13)	(0.14)	
Effects for non-EL students	0.30	***	0.03	0.23	*
(*SE*)	(0.08)		(0.12)	(0.11)	
Differences in effects for EL and non-EL students	0.08		0.01	-0.07	
(*SE*)	(0.12)		(0.17)	(0.16)	
Student *n*/ Teacher *n*	858/223		483/130	535/155	
Ethnicity					
Effects for White students	0.45	***	0.03	0.31	~
(*SE*)	(0.13)		(0.20)	(0.16)	
Effects for Latino students	0.33	***	0.04	0.14	
(*SE*)	(0.08)		(0.11)	(0.11)	
Differences in effects for White and Latino students	-0.12		0.01	-0.16	
(*SE*)	(0.15)		(0.22)	(0.18)	
Student *n*/ Teacher *n*	784/224		450/130	509/160	

NOTE: All samples exclude students for whom subgroup data are missing or who do not fall into one of the named categories. EL Includes English learner and redesignated fluent English proficient students. Non-EL includes English only students and fluent English proficient students.

~$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

Impacts on state standardized ELA assessments. We found no evidence of a transfer of Pathway's impact on writing to a broader measure of student ELA achievement (Exhibit 15).

Exhibit 15. Impacts on SBAC, in Effect Sizes

	Point Estimate	*p* value	*(SE)*	*df*	Block *n*	Teacher *n*	Student *n*
Year 1	0.06	0.26	(0.05)	83	51	134	2,733
Year 2, Continuing	0.06	0.33	(0.06)	52	40	66	783
Year 2, First-timers	-0.05	0.37	(0.06)	44	27	64	1,479

~p < .10; *p < .05; **p < .01; ***p < .001.

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