

The Pathway to Academic Success: A Cognitive Strategies Approach to Text-Based Analytical Writing to Improve Academic Outcomes for Secondary English Learners

Table of Contents for Project Narrative

Absolute and Competitive Preference Priorities.....	1
Introduction to the Pathway for Academic Success Project.....	1
National Need for a Project that Enhances the Academic Outcomes of English Learners.....	3
A. Significance	3
Prior Evidence of Moderate Statistical Significance and the Importance and Magnitude of the Effect Expected to Be Obtained.....	5
Quasi-experimental Study.....	6
Experimental Study.....	8
College Follow-up Study.....	9
Unmet Demand for Proposed Project and Feasibility of National Expansion.....	10
B. Project Design	11
Plans to Achieve Goals, Actions Aligned with Priorities and Expected Outcomes.....	12
Goals.....	12
Plans to Achieve Goals.....	13
Actions Aligned with Priorities.....	15
Actions.....	15
Expected Treatment Teacher Outcomes.....	21
Expected Treatment Student Outcomes.....	21
Logic Model.....	21
Sustainability and Addressing Barriers.....	22
Relationship of Cost to Objectives and Estimates for Scaling Up.....	22
C. Quality of the Management Plan	24
Qualifications of Project Director and Key Project Personnel.....	24
Other Resources.....	27
D. Evaluation Plan	27
Overview of the Project Evaluation Design.....	27
Evaluation Questions.....	27
Sample and Study Design.....	28
Quantitative Teacher and Student Outcome Data.....	29
Data on Project Implementation.....	31
Data Analysis.....	32
Primary Impact Analyses.....	32
Power.....	33
Mediation.....	34
Implementation and Replication.....	34
Evaluation Resources.....	34

Project Narrative

The Pathway to Academic Success: A Cognitive Strategies Approach to Text-Based Analytical Writing to Improve Academic Outcomes for Secondary English Learners

Absolute Priority 3: Improving Academic Outcomes for English Learners (ELs)

Competitive Preference Priority 2: Enabling Broad Adoption of Effective Practices

Competitive Preference Priority 3: Supporting Novice i3 Applicants

Introduction to the Pathway for Academic Success Project

The University of California, Irvine, Writing Project (UCIWP), a site of the California Writing Project (CWP) and National Writing Project (NWP), proposes a 4.5-year Validation project, the *Pathway to Academic Success*, to replicate and scale up to a regional level an innovative approach to enhancing the academic literacy of English Learners (ELs) in Grades 7-12. The project will involve four CWP sites and a consortium of school districts: the UC Irvine Writing Project and partner district, Norwalk-La Mirada Unified School District; the South Coast Writing Project (UC Santa Barbara) and Santa Barbara Unified School District; the California State University, Los Angeles Writing Project and Hacienda La Puente Unified School District; and the California State University, San Marcos Writing Project and the North County Professional Development Consortium (representing 24 districts in San Diego County). SRI International's Center for Educational Policy will serve as the external evaluation partner, and NWP will provide independent scoring of student writing samples.

The intent of the Pathway Project is to provide teachers with curriculum materials and instructional practices to prepare ELs in high-need schools to successfully complete courses in core academic subjects and to meet the California Common Core State Standards for English

Language Arts (CA-CCSS-ELA). Specifically, the intervention provides ongoing, sustained professional development (PD) for English Language Development (ELD) and English Language Arts (ELA) teachers focused on how to explicitly teach, model, and scaffold guided instruction in the cognitive strategies (or thinking tools) that research indicates experienced readers and writers access when they analyze and interpret complex texts. These instructional practices are sensitive to the language demands necessary to access challenging content, and the intervention includes technology-based tools to support both teacher PD and student learning. The centerpiece of the intervention is a high-quality pre/post analytical writing assessment (AWA) that is used for formative purposes (i.e., to analyze what students across grade levels know and are able to do in October as compared with the CA-CCSS-ELA standards and to implement effective classroom practices based on the analysis of EL students' work) and for summative purposes (i.e., to analyze students' growth as academic writers between October and May of each year). Ultimately, the goal is to increase the success of under-represented students and to provide a level of academic rigor that will put them on a *pathway* toward postsecondary education through improved academic literacy skills.

The project builds on an 8-year longitudinal, quasi-experimental study and a 4-year randomized field trial in a large, urban, high-need school district (98% Latino, 84% free and reduced-price lunch recipients, 88% mainstreamed ELs) designed by Project Director, Carol Booth Olson, an Associate Professor at UC Irvine and Director of the UCI Writing Project, that yielded **moderate evidence of effectiveness** on student outcomes in Grades 6-12 and was deemed by the IES What Works Clearinghouse to **meet evidence standard without reservations**, as well as suggestive evidence of long-term positive impacts on students' access and persistence in college. Hence, the project directly addresses **Absolute Priority 3: Improving Academic Outcomes for English Learners**. Because of the vast array of field-tested curriculum

modules, student support materials, and technology-based PD resources and student learning tools focused on research-based best practices for enhancing the academic literacy of ELs, the project also addresses **Competitive Priority 2: Enabling Broad Adoption of Effective Practices**. Finally, we have not received an i3 grant previously and, thus, meet **Competitive Preference Priority 3: Supporting Novice Applicants**.

National Need for a Project that Enhances the Academic Outcomes of English Learners

Currently, English Learners (ELs) are the fastest growing segment of the K-12 student population, with the largest increases occurring in Grades 7-12, where ELs grew by 70% between 1992 and 2002 (Hoffman & Sable, 2006; Kindler, 2002). Recent estimates indicate that more than 10% (5 million) of all school-age children are ELs (Fox, 2007). At the same time that EL enrollments have increased in U.S. public schools, researchers and policymakers have highlighted large literacy gaps based on students' English language proficiency. The most recent administration of the NAEP (2011) revealed a significant gap between the computer-based English writing of eighth-grade ELs and their monolingual peers, with ELs averaging a score of 108 versus their monolingual counterparts' mean score of 152 (scale range is 0 to 300, $M=150$, $SD=35$). 65% of eighth-grade ELs performed below the basic level, and 29% performed below the proficient level. At the twelfth grade, the gap was wider, 96 versus 152, with 80% of ELs performing below the basic level, and 99% scoring below the proficient level. Such status reports suggest that serious attention must be paid to determine how best to enhance the academic literacy and improve the academic outcomes of ELs in secondary school (U.S. Department of Education, NCES, 2012).

A. Significance

The Pathway Project takes a cognitive strategies approach to closing the achievement gap between ELs and their native English-speaking peers in the area of text-based academic writing.

Numerous reports from policy centers and blue-ribbon panels “implicate poor understandings of cognitive strategies as the primary reason why adolescents struggle with reading and writing” (Conley, 2008, p. 84; Graham, 2006; Snow & Biancarosa, 2003). The cognitive strategies intervention that is the focus of this study is grounded in a wide body of research on what experienced readers and writers do when they construct meaning from and with texts. Countless studies demonstrate the efficacy of cognitive strategy use in reading (Block & Pressley, 2002; Duke & Pearson, 2002; National Institute of Child Health and Human Development, 2000; Paris, Wasik, & Turner, 1991; Tierney & Pearson, 1983; Tierney & Shanahan, 1991). Similarly, Graham and Perin (2007) indicated that strategy instruction is the most effective of eleven key elements of writing instruction ($d=.82$) for all students and particularly for students who find writing challenging.

Increasingly, recent instructional frameworks and recommendations also support approaches that incorporate strategy instruction to advance ELs' development of English (Francis, Rivera, Lesaux, Keiffer, & Rivera, 2006; Goldenberg, 2008; Schleppegrell, 2009; Calderon, Slavin, & Sanchez, 2011). Short and Fitzsimmons (2007) hypothesize that strategy instruction is especially effective for ELs because it provides them with an explicit focus on language, increases their exposure to academic texts, makes the texts they read comprehensible, gives them multiple opportunities to affirm or correct their understanding and use of language, assists them in retrieving new language features and in using these features for academic purposes, and provides them with the means of learning language on their own, outside of class. They further hypothesize that adolescent ELs of an intermediate level of English proficiency, who represent the majority of Long Term English Learners (LTELs) in California (Olsen, 2010), have sufficient proficiency to benefit from strategy instruction (Echevarria, Short, & Vogt, 2008; Short & Fitzsimmons, 2007) because they possess the language proficiency required to use the

types of cognitive strategies that will provide them access to the higher order cognitive reading and writing tasks encountered in regular content instruction. Explicitly teaching strategic reading and writing behaviors to ELs can help them engage with complex texts and convey those interpretations in well-reasoned essays to meet the CA-CCSS-ELA (August & Shanahan, 2006; Francis et al., 2006; Goldenberg, 2008; Bunch, Kibler, & Pimentel, 2012).

Although research-based practices for developing cognitive strategies are recommended as the “pathway for literacy reform in middle and high schools” (Conley, 2008, pp. 84-85), very little of this type of instruction occurs in school, especially for ELs (Block & Pressley, 2002; Kong & Pearson, 2003; Vaughn & Klingner, 2004; Graham & Perin, 2007). According to a Carnegie Corporation report, inadequate educator capacity and the limited use of research-based instructional practices prevent ELs from learning academic English at a level necessary to meet content standards in English language arts (Short & Fitzsimmons, 2007). This negatively impacts their ability to participate meaningfully in educational programs, successfully complete coursework, and achieve the academic outcomes of which they are capable. The Pathway Project **represents an exceptional approach to Absolute Priority 3** because the UCIWP has a 12-year track record of developing high-quality, technology-supported PD geared toward enhancing ELD and ELA teachers’ classroom practices to positively affect academic outcomes for mainstreamed ELs in Grades 6-12. The cognitive strategies approach, curriculum materials, assessments, and technology tools have been repeatedly field-tested and are constantly updated, with the input of classroom teachers, to meet national and state standards as well as district initiatives.

Prior Evidence of Moderate Statistical Significance and the Importance and Magnitude of the Effect Expected to Be Obtained

This proposal builds on an 8-year quasi-experimental, longitudinal research study (Olson & Land, 2007) and a 4-year randomized field trial (Kim et al., 2011; Olson et al., 2012) conducted

by the UCIWP in the Santa Ana Unified School District (SAUSD), a large, urban, low-socio-economic district with 98% Chicano/Latino students, 88% mainstreamed ELs at the intermediate level of fluency or above, and few native speakers (7% English Only). The cognitive strategies reading/writing intervention we propose to scale up to a regional level is **the same as** the program implemented in the prior research. The quasi-experimental study had high internal validity but did not demonstrate equivalence between the intervention and comparison groups at entry. The randomized field trial had high internal validity and demonstrated the equivalence of both teachers and students at baseline. Both studies have limited generalizability because they were conducted in one homogenous school district. The effect reported in prior research **is likely to be statistically significant** in a sample of the size proposed in the Validation grant. Finally, the effect reported in the prior research **was substantial and important in magnitude** and has potential to be effective for the target population in the Validation project.

Quasi-experimental Study

The quasi-experimental study was conducted in the SAUSD from 1996-97 to 2003-04 with funding from the U.S. Department of Education Office of English Language Acquisition (OELA). Fifty-five treatment and 55 control teachers participated each year. The primary instrument used to measure student growth in reading and writing was a pre- and posttest timed direct writing assessment, the Assessment of Literary Analysis (ALA), which calls for literary interpretation in a well-structured essay. Order effects were controlled by counterbalancing the administration of the two timed writing assessments across classrooms. Each Pathway teacher was paired with a control teacher at the same school with a class matched for ability level whose students were not in the intervention. Over 1500 treatment and 1500 control students per year participated in writing assessments.

From all complete pre- and posttest pairs of assessments, 14 were selected at random from

each teacher's class. These original assessments were coded to disguise all information identifying the writer, age, school, grade level, and time of testing. Scoring rubrics were aligned with the California Standards Tests, California High School Exit Exam, and National Assessment of Education Progress rubrics. Papers were scored twice by trained veteran UCIWP teachers (not from SAUSD), and discrepancies (difference of 2 points or greater) were resolved by a third reader. Interrater reliability correlations typically exceeded .7. Exact agreement typically approached 50%, and agreement within 1 point typically exceeded 85%. Each year we piloted and used a different pair of the ALA. Validity of the writing assessment is suggested by moderate correlations (.3-.5) with norm-referenced assessments of vocabulary and language ability. Substantive analyses were conducted using repeated measures ANOVA and revealed that across the 8 years of the study, treatment students outscored control students on the posttest assessment in 7 consecutive years (Years 2-8), with an average effect size of .40 (see Table 1 in Appendix D).

The California High School Exit Exam (CAHSEE) is a requirement for high school graduation. Students first take the exam in Grade 10 and again in subsequent grades if they do not pass. The CAHSEE was passed by 91% of Pathway 10th graders as compared with 75% of controls and 66% of SAUSD 10th graders overall in 2003; and by 93% of Pathway 10th graders as compared with 66% of controls and 62% of SAUSD 10th graders overall in 2004 (see Table 2 in Appendix D).

An article on the quasi-experimental study (Olson & Land, 2007) won the Alan C. Purves Award in 2007 from the NCTE for the article in the journal *Research in the Teaching of English* “deemed most likely to improve education practice,” and the Richard A. Meade Award in 2009 from the Council on English Education of the NCTE for “outstanding research in pre-service or in-service English education.”

Experimental Study

In 2005-06, the UCIWP received a 4-year Goal 3 Efficacy grant from the Institute of Education Sciences (IES) to conduct a randomized controlled field trial with teachers in SAUSD who had no prior exposure to Pathway PD. In this field trial, 104 teachers were randomly assigned to treatment and control conditions. Treatment teachers received 2 years of the annual 46-hour PD (2007-08 and 2008-09) and control teachers conducted “business as usual,” which included teaching the ELA curriculum following a district/school site pacing chart. Both groups attended 23 hours of district PD focused broadly on interpreting test data, using test data to improve schools’ California Standards Tests (CST) achievement scores, and helping students improve their summarizing strategies during reading (Dufour & Eaker, 1998; Marzano, Pickering, & Pollock, 2001) and used the same textbooks.

In 2007-08, the first year of the field trial, 20 papers per class of the pre/post ALA on-demand, text-based writing assessment were selected at random for scoring. Treatment and control students’ pretest scores were equivalent, but at posttest, students in Pathway classrooms ($M = 6.27$, $SD = 1.56$) scored higher than students in the control classrooms ($M = 5.85$, $SD = 1.56$), and the percentage of students who earned at least two scores of 4 or above on the ALA was 22% for the Pathway group compared to 14% for the control group ($d = .35$). In addition, at posttest, the Pathway mean CST writing score of 327.66 exceeded the control group mean CST writing score of 325.60 ($d = .07$) (see Table 3 in Appendix D). Our Year 1 findings were published in the *Journal of Research on Educational Effectiveness* (Kim et al., 2011) and were deemed by the IES What Works Clearinghouse to **meet evidence standards without reservations**. The WWC noted, “This study is a well implemented randomized controlled trial.” (See Appendix D for WWC Report.)

In Year 2 of the field trial (2008-09), multilevel models revealed that Pathway students

scored .67 standard deviation higher on the ALA than students in classrooms taught by control teachers -- almost double the effect size of Year 1 ($d = .35$). **The magnitude of the Year 2 effect size indicates that the average student who was taught by a Pathway teacher improved from the 50th to the 75th percentile on the ALA posttest.** We attribute the difference between Year 1 and Year 2 scores to the “uptake” time involved for teachers and students to internalize a complex intervention. Additionally, we found that students in all classes taught by Pathway teachers (not just the designated Pathway class) outperformed students in all classrooms taught by control teachers ($d = .10$) on CST writing scores (see Tables 4 and 5 in Appendix D). Finally, classroom observations conducted in the Year 2 study revealed that Pathway teachers ($M = 4.12$, $SD = 0.94$) were more likely than control teachers ($M = 3.5$, $SD = 0.79$) to deliver lessons appropriate to students ($t = 2.73$, $p < .05$), and that Pathway teachers ($M = 4.03$, $SD = 1.12$) were more likely than control teachers ($M = 2.90$, $SD = 0.96$) to use strategies consistent with Pathway professional activities ($t = 4.11$, $p < .01$). Raters also indicated that students of Pathway teachers ($M = 3.17$, $SD = 0.89$) were more likely to demonstrate effective use of cognitive strategies compared with students of control teachers ($M = 2.51$, $SD = 1.01$), $t = 2.58$, $p < .05$. Our Year 2 study was recently published in the *American Educational Research Journal* (Olson et al., 2012), and we have submitted it to the What Works Clearinghouse for review.

College Follow-up Study

In 2008-09 and 2009-10, 100% of Pathway 12th graders graduated as opposed to 79% of SAUSD 12th graders overall. To determine the long-term impact of the Pathway Project on SAUSD 12th graders, we received a Local Sites Research Initiative (LSRI) grant from the National Writing Project to study to what extent the Pathway Project reading/writing intervention prepared SAUSD students to compete successfully at Santa Ana College (SAC). The study focused on four cohorts of SAUSD treatment and control students at SAC in '09-10 and '10-11.

Findings indicate that Pathway students placed higher than comparison students in the composition sequence at SAC; completed English 101, the transfer course to the University of California, at higher rates; and persisted to their second year of college at higher rates. Both Pathway cohorts passed English 101 at substantially higher rates than the control/comparison students and also all SAC freshmen (2009-10: Pathway 78%, control 60%, all freshmen 63%; 2010-11: Pathway 80%, comparison 67%, all freshmen 62%). Most importantly, 78% of the Pathway cohort who entered SAC in 2010 persisted to their second year of college as opposed to 45% of comparison students and 35% of all freshmen. Despite the small *N* of both groups (Pathway and comparison), this difference was significant ($p < .013$) (see Tables 6 and 7 in Appendix D). Further regression analyses revealed that participation in the Pathway intervention was predictive of both better writing outcomes in high school as well as better persistence in college (odds ratio , $\text{Exp. } (\beta) = 2.692$) (Matuchniak, 2013).

Unmet Demand for Proposed Project and Feasibility of National Expansion

Our 12 year track record and What Works rating demonstrate that the Pathway Project is likely to have the estimated impact on teachers and ELs in other service areas, and the increasing size of the EL population and growing achievement gap demonstrates an unmet demand for high quality PD and curriculum materials to enhance the academic outcomes for ELs. To date, however, the intervention has been focused on one large urban district and has been dependent on the program developer (Olson). Through this i3 grant, we propose to involve four CWP site directors and a number of large districts serving high populations of ELs ranging geographically from Santa Barbara to San Diego in the intervention. (See Appendix C for demographic profiles of each district.) These CWP site Directors, in turn, can reach an even larger number of teachers and districts through their annual invitational Summer Institute sponsored by the California and National Writing Projects. Within California, an infrastructure exists to implement the Pathway

Project in all 17 CWP sites. Nationally, the NWP infrastructure extends our capacity to expand the project to all 50 states through the 180 site network. Our plans to enhance and expand the technology tools supporting the intervention (see Project Design) will also enable us to provide students and teachers with equitable “anytime, anywhere” access to learning materials for teachers of secondary ELs and to EL students themselves.

B. Project Design

ELs, one of the most marginalized and at-risk student groups in American schools, are twice as likely to be low-income as native English speakers (Metisnet, 2008), more likely to be segregated and often attend schools with large concentrations of ELs, more likely to be retained than non-ELs (46% versus 37%) and dropping out at higher rates than their non-EL counterparts (25% versus 15%) (Kim, 2011). Given that writing is a gatekeeping skill for academic success, one would assume that ELs would receive a double-dose of academic writing instruction. However, many teachers of ELs avoid teaching their students to write analytical essays because they think the skills required are too sophisticated for the population they serve. In fact, researchers have noted a “growing inequality” in classroom instruction where students designated as “honors students” are exposed to rigorous academic work designed to promote higher literacy, whereas low achievers, low SES students, and ELs often receive instruction that places a premium on the “transmission of information, providing very little room for the exploration of ideas, which is necessary for the development of deeper understanding” (Applebee, Langer, Nystrand, & Gamoran, 2003, p. 689). Fed a steady diet of literal comprehension questions and short-answer summary writing in response to selections in their textbook, many ELs fall back on *retelling* on high-stakes assessments as a way to prove that they understood what they read. In California, this type of response will warrant a score of 1 on a 4-point scale on the California High School Exit Exam writing rubric.

Plans to Achieve Goals, Actions Aligned with Priorities, and Expected Outcomes

Goals

The goals of this project, which meet **Absolute Priority 3 and Competitive Preference Priorities 2 and 3**, are to:

1. Close the school achievement gap for ELs by developing a long-term educational partnership between four CWP sites and partner school districts to provide high-quality PD for ELD and ELA teachers and positively enhance student outcomes for ELs in Grades 7-12 over a 4-year period and beyond;
2. Replicate the efficacy of the Pathway Project, a cognitive strategies-based reading/writing intervention with moderate evidence of success, on a regional level and enable a broad adoption of effective practices through the California and National Writing Project networks;
3. Improve the quality of teaching through intensive PD on the Pathway intervention and provide ELD and ELA teachers with content knowledge, pedagogical strategies, curricular approaches and materials, and technology-based tools to prepare students to successfully complete courses in core academic projects and to meet the rigorous new CA-CCSS-ELA in order to successfully prepare them for postsecondary education;
4. Enhance the sustainability of the intervention by providing administrators and counselors with ongoing information on research-based best practices for developing the academic literacy of ELs, and by training district and school site literacy coaches to continue to deliver intervention strategies after funding terminates;
5. Build capacity and sustainability by training outstanding CWP Directors and site Teacher/Consultants (previously trained in the Pathway intervention at CWP Summer Institutes) to extend the PD to other districts in their service area;

6. Further enhance capacity and sustainability by providing “anytime, anywhere” access to an online professional learning community that houses Pathway intervention materials and offers a forum in which teachers can share and discuss Pathways curricular materials, and by providing ongoing access to technology-based student learning tools.

Plans to Achieve Goals

Planning, Preliminary Training and Recruiting Period (January-August 2014) – During the planning period, we will host monthly planning meetings with CWP Directors and lead Teacher/Consultants to design the logistics of the PD delivery along with key district stakeholders, including two Common Core/EL district Literacy Specialists from each partner district. Partner districts will be asked to target their highest need schools with the largest percentages of ELs. We will then host a full day training for school principals and school site Pathway counselors to solicit their feedback and enlist their support of the Pathway plan. Each principal and counselor will be asked to commit to ensuring that the maximum possible treatment and control EL students in Year 1 of the project will be kept together as a cohort and placed in the Pathway teacher’s class in the subsequent grade level in Year 2¹. Our research indicates that the more exposure teachers and students have to the Pathway strategies, the greater the benefits (Olson et al., 2012). Principals will also be asked to select one outstanding teacher to serve as the School Liaison. These teachers and the district Literacy Specialists will attend a two-day training in Spring 2014. Along with the principal, they will be the primary recruiters of teachers for the randomized controlled trial (RCT).

Years 1 and 2: Randomized Controlled Trial (2014-15 and 2015-16) – At the start of the 2014 school year, we will complete the recruitment of teachers across the partner districts until we reach a sample size of 240 teacher participants. The teachers will be asked to make a 3-year

¹ Districts have committed to ensuring that a minimum of 50% of students remain intact in each cohort.

commitment and to sign a form to indicate their agreement to serve as a control teacher if they are not selected to receive the PD. An incentive for control teachers and for the districts is that control teachers will become experimental teachers and receive the PD in Year 3 of the project, thus doubling the number of teachers served. To ensure that the maximum number of students is served, any teacher lost to attrition from one year to the next will be replaced with another teacher; (however, new teachers will not be included in the RCT). Teachers will be randomly assigned to the treatment and control groups (120 teachers in each group). Treatment teachers will attend six PD release days (36 hours) and five 2-hour afterschool meetings (10 hours), administer the pre/post Analytical Writing Assessments (AWAs) to their students for internal assessment purposes, teach specified Pathway CA-CCSS-ELA aligned lessons, receive training on technology-based intervention tools, and engage students in revising their pretest into a multiple draft essay. Treatment and control teachers will receive equivalent stipends and classroom library allocations as incentives to participate.

Year 3: Controls Become Experimental (2016-17) – In Year 3, control teachers will become Pathway teachers. They will receive the 46 hours of PD and implement the Pathway intervention in their classrooms, and their performance in Year 3 will be compared by CWP sites with data collected on them as controls in Years 1 and 2². Teachers who were in the treatment group in Years 1-2 will continue to use the intervention but will not participate in Year 3 PD, with the exception of the School Liaisons. CWP Directors will extend fellowships to each School Liaison to receive extensive training in the 100 hour CWP Summer Institute and become Literacy Coaches at their respective school sites for Years 3 and 4.

Year 4: District Institutionalization (2017-18) – Throughout the duration of the project, each participating district will designate two district Literacy Specialists to participate in the four

² This comparison is for formative feedback purposes only and is not part of the RCT used to estimate impact.

years of the training and assist participating teachers in the “uptake” involved with implementing a new intervention. To ensure the sustainability of the intervention after funding terminates, each CWP Director and lead Teacher/Consultant will work with the district team to take the PD to scale in the district in Year 4 by providing district-wide inservices for all ELD and ELA teachers not previously served by the project.

Actions Aligned with Priorities

Treatment teachers in the Pathway Project will participate in 46 hours of training each school year (via six 6-hour release days and five 2-hour afterschool sessions) focused on methods for helping mainstreamed ELs develop the academic literacy necessary to successfully complete courses in core academic subjects and meet the CA-CCSS-ELA standards, with special emphasis on interpretive reading and text-based analytical writing. **This training is aligned with Absolute Priority 3** and will focus on literary response and analysis; comprehension and analysis of literary nonfiction and informational texts; and development of clear, coherent, focused essays. The UCIWP will serve Norwalk-La Mirada Unified School District, a district not previously served by the UCIWP. PD for this district, led by Pathway Project developers, will not only benefit district teachers but also **every session** will be attended by CWP Directors and lead Teacher/Consultants to promote replication of the PD training at the other sites. Each session will be followed by debriefing sessions with all four CWP site PD training teams. Training for Years 1-3 will be led by CWP Directors and lead Teacher/Consultants trained by the UCI developers of the Pathway Project and supported first by district Literacy Specialists (Years 1 and 2) and then by school site Literacy Coaches (Years 3 and 4).

Actions

There are five core components of the Pathway Project: (1) training in the use of the cognitive strategies tool kit and curriculum materials; (2) intervention activities focused on the

revision of the pretest on-demand writing assessment into a multiple draft essay; (3) technology tools and resources to facilitate “anytime, anywhere” access to PD and learning materials; (4) coaching from a more experienced, veteran teacher previously trained in the Pathway Project (during CWP Summer Institutes) on how to integrate a cognitive strategies approach into the CA-CCSS-ELA curriculum; and (5) Pathway counselors who create an Ed Plan for each Pathway EL to ensure that he/she fulfills the district’s college-readiness requirements.

Cognitive Strategies Tool Kit and Curriculum Materials. Strategy instruction in this intervention occurs within the context of teaching reading and writing as a process, and involves pre-reading, during reading, and post-reading activities as well as prewriting, planning, drafting, sharing, revising, and editing activities. During the first two PD days, teachers are introduced to a model of the cognitive strategies that make up a reader’s and writer’s mental tool kit (e.g., *planning and goal setting, tapping prior knowledge, asking questions, visualizing, analyzing author’s craft, adopting an alignment, summarizing, clarifying, making predictions, making connections, forming interpretations, monitoring, revising meaning, reflecting and relating, evaluating*). These thinking tools or acts of mind directly map on to the CA-CCSS-ELA Anchor Standards for College and Career Readiness in Reading and Writing that call for students to be able to do the following as they read and write about complex texts: summarize, make inferences, analyze, interpret, draw conclusions, evaluate, assess, revise, and reflect. The CA-CCSS-ELA “do not mandate such things as a particular writing process or the full range of metacognitive strategies that students may need to monitor their thinking and learning” but leave to curriculum developers, states, and teachers’ “professional judgment and experience” to determine what “tools and knowledge” students will need in order to meet these challenging new standards (National Governor’s Association, 2010, p. 4). The Pathway Project focuses on these tools.

Teachers receive wall posters with visuals representing the cognitive strategies, and students receive bookmarks as well as 8½” x 11” copies of cognitive strategies sentence starters that illustrate what goes on in the mind of a reader or writer in the act of meaning construction. For example, a sentence starter for revising meaning is “At first I thought—but now I...” and a starter for reflecting and relating is, “So, the big idea is...” To build students’ declarative knowledge of what cognitive strategies are, teachers present scaffolded lessons called “tutorials” (Bruner, 1978) in which they introduce each of the tools in the tool kit to students within the context of reading and writing about high-interest literary or nonfiction texts. To enhance their procedural knowledge of how to implement the strategies, students receive instruction on how to make marginal annotations and keep dialectical journals to interpret complex texts. Finally, to foster conditional knowledge of when to use a cognitive strategy, which strategy to use, and why, students are taught to think aloud in response to complex texts while a partner records their responses and then label their strategy use, as well as to write metacognitive reflections describing the cognitive strategies they used in order to form interpretations about texts and write analytical essays. The intervention provides a wide array of teacher-tested and easy-to-use paper and computer-based materials as models of curriculum and instruction. A chart of Pathway curriculum materials, technology tools, the cognitive strategies sentence starters, and a sample Common Core lesson can be found in Appendix J.

Formative Assessment and Revision of Pretest. Second, teachers learn how to use results from the AWA pretest to provide instruction in text-based analytical writing. To that end, PD focuses on preparing students to read, make inferences, and form interpretations about complex literary and nonfiction texts and to convey interpretations in thoughtful, well-organized essays that present a clear thesis supported with appropriate textual evidence. The centerpiece of the interpretive reading and analytical writing intervention is an extensive set of materials shared

during Days 3 and 4 of the PD program, focused on the revision of students' pretest writing assessment (a text-based analytical essay) into a multiple draft essay. Student performance on this timed, on-demand pretest essay is used to inform the intervention as teachers engage in analyzing students' work and identifying students' strengths and areas for growth (Biancarosa & Snow, 2004; Black & Wiliam, 1998). Based on the teachers' analysis of students' pretest essays, lessons are implemented to address students' needs relative to the CA-CCSS-ELA.

The process teachers guide students through to revise their pretest takes several weeks and focuses on converting essays from informal English to academic English, varying sentence structure, editing for correctness, and most importantly, adding and deepening interpretation and commentary, supported with textual evidence. To model ineffective and effective analytical essay writing, students analyze samples of NOT PASS and STRONG PASS essays. Using these sample essays, teachers guide students through understanding the three types of assertions that make up an analytical essay (i.e., plot summary, commentary, supporting detail) and how to use a color-coding system to identify these elements in analytical writing. Students then apply this color-coding strategy to their pretest essays to visibly see whether they have simply summarized or included interpretation and evidence, and then revise their essays. Teachers analyze these revised essays during the fifth day of PD and focus on sentence craft and English language conventions. Prior to the final PD session, students analyze their pre- and posttests and write a reflection about their growth as learners over time. At PD Session 6, teachers review their students' reflections and their pre/post essays and create an action plan for the following year.

Technology Tools. The intervention includes an online learning environment with two key components. 1) The first component is a Professional Learning Community (PLC) accessible to participating teachers that houses PD resources such as brief videos demonstrating key aspects of the intervention, coupled with corresponding curricular materials. PD resources will also include

teacher-led forums for sharing and discussing Pathway curricular materials as a means of fostering sustainability through a sense of teacher-ownership. During the course of the intervention, these forums will be closely monitored by key project personnel in order to provide guidance to participating teachers, to review content to develop a Frequently Asked Questions module based on recurring topics, and to inform the ongoing design of the PLC based on teacher needs. 2) The second component includes technology tools for students that have been developed to address areas of need identified in an ongoing and sustained analysis of hundreds of writing samples from ELs of varying levels of language proficiency by Professor Robin Scarcella, a nationally renowned linguist who specializes in ELs. These tools include online resources such as animated videos demonstrating cognitive strategy use; mini-lessons and essay templates focused on specific elements of essay structure and writing style and conventions; JavaScript-based tools to support movement from conversational to academic language; an Etherpad-based tool that enables students to color code their essays electronically and calculates percentages of plot summary, supporting detail, and commentary; randomized/timed writing prompts; and on-demand cognitive strategy sentence starters. The technology-based components of the project address **Competitive Priority 2: Enabling Broad Adoption of Effective Practices** by developing tools and a learning community that will provide teachers with sustained, anytime, anywhere access to the key components of the Pathway PD training and curricular materials to support implementation of Pathway practices with fidelity. The project also provides sustained access to online student learning tools that can be used independently by students and in a variety of formal learning settings with diverse student populations.

Coaching. The fourth core component of the intervention involves coaching. Throughout their participation in Pathway, teachers receive ongoing support from district Literacy Specialists and lead Writing Project Teacher/Consultants in Years 1 and 2 and a school site Literacy Coach

in Years 3 through 4. Pathway coaches attend PD trainings along with the treatment teachers, convene five school site meetings in collaboration with CWP site Directors and Teacher/Consultants that are customized to district issues such as pacing charts, district benchmarks, tracking, etc.; conduct informal non-evaluative classroom observations or demonstrate lessons upon request; and assist teachers in integrating interpretive reading and analytical writing instruction using the cognitive strategies approach into the lessons in their language arts textbook. Research indicates that when coaching is combined with PD, teachers are more likely to implement innovations in their classroom (Buly, Coskie, Robinson, & Egawa, 2006; Joyce & Showers, 2002; Olson & Land, 2008). **This Pathway Project cycle is repeated each successive year with the same cognitive strategies but with different lesson tutorials and text-based writing assessments.**

Counselors: The fifth core component involves counselors. Students will be told that the purpose of this project is to prepare them to become college and career-ready and that they are on the *pathway* to college access and success. The goal is for students in Grades 7-12 to successfully prepare for, enter, and graduate from two- and four-year colleges. The curriculum is designed to address students' preparedness and expectations related to college as articulated in the CA-CCSS-ELA. Teachers and district and school site Literacy Coaches will provide support in motivating and academically preparing students to become college-bound. Further, each school site will have a dedicated Pathway counselor who helps students understand issues of college eligibility, affordability, financial aid, and the application process. Counselors are responsible for retaining the maximum number of EL students in Pathway classes during Years 1 and 2. The counselors will also ensure that students take and pass appropriate coursework to fulfill their college-readiness requirements as well as composition tests for college writing placement that are offered to high schools for Early Decision admission programs. Counselors,

the School Liaison, the principal, and a CWP Director or Teacher/Consultant will host a yearly meeting in the Fall with parents of Pathway students to explain the program, college requirements, and enlists parents' support for the intervention.

Expected Treatment Teacher Outcomes

1) Increased knowledge of the CA-CCSS-ELA; 2) Increased efficacy in language arts and writing instruction; 3) Increased time spent on writing instruction; 4) Increased range and quality of pedagogical practices, including greater use of explicit strategy instruction; more emphasis on higher level meaning of complex text; specific attention to text-based analytical writing strategies; and strategies to improve the academic vocabulary and formal academic English of at-risk students and ELs; 5) Ability to integrate the cognitive strategies approach and CA-CCSS-ELA text-based analytical writing focus into their current ELA textbook by creating their own scaffolded lessons to share in grade-level teams; 6) Increased use of technology-based tools to support the academic literacy of ELs.

Expected Treatment Student Outcomes

1) Increased ELA standardized test scores each year compared to growth during the previous year and relative to control students' scores; 2) Growth on a pre/post on-demand writing assessment administered in October and May each year, with effect sizes of .20-.40 in Year 1 and .40-.70 in subsequent years; 3) Greater high school graduation rates compared to controls and all 12th graders, and higher rates of postsecondary education enrollment compared to controls and all 12th graders.

Logic Model

The theory of change linking the Pathway teacher PD to change in student writing is based on research which suggests the three most critical elements in effecting change in student writing are (1) sustained teacher PD, (2) student pretest to inform instructional activities, and (3)

summative measures to assess efficacy (Rossi, Lipsey, & Freeman, 2004). The proposed Pathway project will begin with teacher PD that includes training using a cognitive strategies approach to text-based analytical writing to improve academic outcomes for ELs. The proximal outcome is that teachers use the Reader's and Writer's Tool Kit, scaffolded lessons, and technology tools and resources, to enhance instruction and guide students through revising their pre-test into a multiple draft essay. The intermediate outcome is that EL students' performance on the project's on-demand writing assessment significantly improves at post-test. The distal outcome is that EL students' performance on standardized ELA state tests improve, students pass the California High School Exit Exam, graduate from high school, and pursue postsecondary education. (A figure depicting the logic model appears in Appendix D.)

Sustainability and Addressing Barriers

The proposal has a clear plan for sustainability by involving the district Literary Specialists and school site Literacy Coaches in the first three years of the training and providing support (both human resources and financial) for each district to lead their own PD in Year 4 to scale up the training district-wide. Additionally, each of the four CWP Directors leads an annual 100-hour Summer Institute for exemplary teachers throughout their region, where they will disseminate the Pathway cognitive strategies approach to the CA-CCSS-ELA. This makes the intervention less dependent on the program developer and empowers other experts to deliver the PD as well as use their own expertise to enhance it and customize it to meet the particular service area and EL population. Other vehicles for scaling up are the 13 additional sites of the CWP and the 180 NWP sites in other states. Few projects have such a built-in infrastructure for scaling up.

Relationship of Cost to Objectives and Estimates for Scaling Up

Given the dearth of research on effective strategies for improving the academic literacy and especially the text-based analytical writing of secondary ELs (Graham & Perin, 2007; Shanahan

& Beck, 2006), that ELs in Grades 7-12 are the fastest growing population in the K-12 sector, that placement in college composition is a major gatekeeper in terms of college access and persistence, and that, currently, only 4 percent of Latinos (a proxy for ELs) enrolled in community college actually transfer to a four-year institution at the end of two years (California Community Colleges, 2006-2007), **we believe that as a nation, we cannot afford not to invest in the academic future of this at-risk population.** (Please see the letter of support from the Council of the Great City Schools in Appendix G that addresses this issue.)

In Years 1-3, 25,200 students (240 teachers x 35 students x 3 years) will be directly served by the project and participate in the pre/post writing assessment. (The sheer volume of papers generated and the cost of the NWP scoring necessitate that teachers select only one Pathway class set of papers for scoring, although they will be encouraged to administer the assessment in all classes.) Additionally, teachers will implement the cognitive strategies approach in all of their classes for an additional 58,800 students served (experimental 120 teachers x 35 students x 4 classes x 2 years = 42,000; control 120 x 35 students x 4 classes) x 1 year = 16,800). In Year 4, district training will reach a minimum of 120 teachers (4 x 35 districts x 5 periods x 30 teachers), benefiting an additional 21,000 students. Hence, the total number of all students taught by Pathway teachers over the project will be 105,000.

Based on our estimated numbers of students served by the project, the per-student cost is \$444 for those directly served and \$107 for those directly served plus those indirectly served. Per-student cost to reach 100,000 students is \$112; 250,000 students is \$44.80; and 500,000 students is \$22.40. These costs compare favorably to the estimated per-student cost of \$41 for the Strategic Literacy Initiative i3 Validation project conducted by WestEd to reach 500,000 students.

C. QUALITY OF THE MANAGEMENT PLAN

The project's Leadership Team will include the Principal Investigator/Project Director, Co-PIs, Literacy Coaching Director, and Project Manager from UCI, the three CWP Directors, and the Superintendents of the participating districts, the district Literacy Specialists, and one middle and one high school teacher participant (School Liaison) from each district. The Leadership Team will conduct quarterly meetings to discuss progress meeting goals in Years 1-4. Additionally, each CWP site Director will convene a site-specific management team including the two lead Teacher/ Consultants, district Assistant Superintendent of Secondary Education, district Literacy Specialists, school site principals, Pathway counselors, and School Liaisons. These site-specific teams will also meet quarterly in each project year to assess progress. As mentioned previously, CWP Directors will meet an additional six times per year at debriefing sessions after UCIWP-led PD along with district Literacy Specialists in Years 1 and 2 and school site Literacy Coaches in Year 3. In Year 4, the Leadership Team will continue to meet to share PD plans across the region and CWP Site Directors will provide support and technical assistance, and will hold monthly conference calls to coordinate their efforts. See Appendix J for an organizational chart and a timeline with milestones and names of parties responsible for implementation.

Qualifications of Project Director and Key Project Personnel

Dr. Carol Booth Olson, an Associate Professor in the School of Education at the University of California, Irvine, and Director of the UC Irvine/California Writing Project (UCIWP), will serve as Principal Investigator and Project Director. Dr. Olson has 35 years of experience delivering PD for the UCIWP, is the developer of the Pathway Project, is the author of five books and over 30 articles on effective literacy instruction, has been an expert panelist for a What Works Clearinghouse practice guide on writing instruction (Graham et al., 2011), and is the recipient of two state and two national awards for outstanding educational research. Olson

has a long history of managing complex projects in collaboration with school districts with both state and federal funding. She is the lead author of two of the research articles cited as moderate evidence of Pathway Project success and second author on the third article. In addition to overall project management, Olson will take the lead on the PD and curriculum design components of the project. Co-Principal Investigator **Dr. Robin Scarcella**, is a Professor in the School of Humanities at UCI and Director of the Program in Academic English. Scarcella is a linguist who specializes in strategies for accelerating the academic English of ELs, also the title of her most recent book (2003). She has contributed to the creation of California's ELD Standards, served as an expert panelist for a What Works Clearinghouse practice guide on research-based practices for teaching ELLs (Gersten et al., 2007), written over 25 journal articles and four books, and collaborated with Olson on the Pathway Project since 2005. Scarcella will take the lead on the academic English component of the project. Co-Principal Investigator **Dr. Rebecca Black** is an Associate Professor of Language, Literacy and Technology in the School of Education at UCI who specializes in technology and learning, with an emphasis on language and literacy development. She has published one book and multiple articles in top tier research journals and has served as a National Academy of Education/Spencer Foundation Postdoctoral Fellow. Black will take the lead on technology-based components of the project. **Dr. Bill Tomlinson** is a Professor of Informatics at UCI and will advise the team on technology-related aspects of the project, assess appropriate technologies, coordinate interactions with a programming team composed of graduate students, undergraduates, and/or contract programmers, and implement aspects of the technology tools as needed. **Catherine D'Aoust** is a former Director of K-12 Curriculum and Instruction for Saddleback Valley Unified School District with over 30 years of experience as Co-Director of the UCIWP. An expert in literacy coaching, D'Aoust will serve as a liaison to the district and school site administrators and take the lead on the project's literacy

coaching component. **Dr. Tina Matuchniak**, a Composition Lecturer at California State University, Long Beach, and Postdoctoral Fellow under Dr. Olson, who specializes in the academic writing of ELs, will serve as the Project Manager.

Three California Writing Project site directors also will be members of the Leadership Team. **Dr. Robert Land** is a Professor of Education at the Charter College of Education at California State University, Los Angeles, Director of the Cal State LA Writing Project, and recipient of two national research awards with Olson. **Dr. Tim Dewar** is a Lecturer in the Gevirtz School of Education at UC Santa Barbara and Director of the South Coast Writing Project, and the recipient of a national research award. **Dr. Laurie Stowell** is a Professor of Education at California State University, San Marcos and Director of the Cal State San Marcos Writing Project, and the recipient of a state English Classroom Excellence Award. All three have extensive experience managing complex projects and will be responsible for the PD programs in their partner school districts and for managing resources to be distributed to those districts. (See Appendix F for Resumes of Key Personnel.)

School partners include **Dr. Ruth Pérez**, Superintendent, Norwalk-La Mirada Unified School District; **Dr. David Cash**, Superintendent, Santa Barbara Unified School District; **Dr. Brenda Hall**, Director, North County PD Consortium; and **Dr. Barbara Nakaoka**, Superintendent, Hacienda La Puente Unified School District.

Four eminent literacy researchers have agreed to serve as advisors to the project: **Dr. P. David Pearson**, Professor of Education, University of California, Berkeley; **Dr. Judith Langer**, Distinguished Professor of Educational Theory and Practice and Director, National Center on English Learning and Achievement, State University of New York, Albany; **Dr. Steve Graham**, Currey Ingram Professor of Literacy and Special Education, Vanderbilt University; and **Dr. Paul Le Mahieu**, Vice President for Programs and Education, Carnegie Foundation for the

Advancement of Teaching.

Other Resources

All four CWP sites are housed at universities with the infrastructure necessary to manage complex grants (administrative personnel, grants management, foundation office, etc.). We have begun to seek private sector partners to meet the cost matching requirement and already have commitments from Scholastic and Houghton Mifflin/Harcourt Publishers for over \$700,000 to provide educational resources that will be distributed equally among treatment and control teachers. Other potential donors include the Bill and Melinda Gates Foundation, the Carnegie Foundation, the Kellogg Foundation, the Irvine Foundation, the Nicholas Foundation, the Lumina Foundation, and private donors such as Donald Bren and Henry Samueli. Dr. Paul Le Mahieu has agreed to donate his services as an advisor to the project as an in-kind contribution. We also plan to register on the i3 website to seek other foundation partners (See Non Federal Cost Match Budget and Appendix G)

D. EVALUATION PLAN

Overview of the Project Evaluation Design

SRI will lead an independent evaluation of the *Pathway to Academic Success* project. The study proposes using a cluster randomized controlled trial (RCT), where teachers are the unit of random assignment. Data sources will include measures of teacher and student outcomes and fidelity of implementation (listed in Exhibit 1). Findings will be shared through annual reports and regular project briefings. These regular briefings will give collaborating CWP partners the data necessary to support implementation of their model with fidelity.

Evaluation Questions

SRI will address the following research questions (Exhibit 1).

Exhibit 1

	<i>Writing Prompts</i>	<i>Teacher Logs</i>	<i>Teacher Surveys</i>	<i>Student Surveys</i>	<i>Extant Data</i>	<i>Participation Monitoring</i>	<i>Site Visits: Interviews and PD</i>	<i>Observations</i>
Impact								
(1) What is the impact of the Pathway Project on student learning outcomes?	•			•	•			
(2) What is the impact of the Pathway project on teacher instructional practices?		•	•					
Mediation								
(1) Which features of Pathway appear most related to changes in teacher practice?		•	•			•		
(2) Which teacher practices correlate with improvements in student writing?	•	•	•		•			
Implementation & Replication								
(1) To what extent was the Pathway project implemented with fidelity to the Pathway model?		•	•			•		•
(2) What contextual factors impeded or enhanced implementation of the Pathway project?								•
(3) What supports facilitated replication in the CWP sites that were new to the Pathway model? What challenges did the new sites face?						•		•

Sample and Study Design

UCIWP recruited three additional local Writing Project sites with large numbers of ELs in their service areas (see Appendix C for demographics), reach across the Southern California region, and experienced leadership. The sites have not worked on a cognitive strategies approach to writing with any of the districts participating in the evaluation, making them an ideal setting for an RCT. Starting in the spring of 2014 and continuing (as needed) into September 2014, local Writing Project sites will recruit 60 teachers per district, aiming for 4 teachers per grade per school, to participate in the experiment.

To assess the impact of the Pathway project, SRI will randomize half of the recruited teachers in each district into treatment and half into control (delayed treatment). Because randomization will take place after students are assigned to teachers in the fall of 2014, student assignment to treatment vs. control will be unbiased. Additionally, randomization together with a balanced design at the school and grade level (i.e., pairs of teachers at each relevant grade in a school will be recruited and then randomly assigned to treatment and control) should provide equivalence across both baseline indicators of important outcomes and local contextual factors as

compared to randomization without regard to school. While we will monitor teacher practices to detect cross-over should it occur, teachers in the control condition will not have access to the project materials (e.g., toolkit, specific curricular materials, and project-specific technology) and Pathway teachers will be asked not share materials or intervention practices; as such, it is unlikely that teachers will informally contaminate colleagues in the control condition.³ To ensure that a sufficient number of students experience 2 years of treatment (or 2 years of control), participating districts have committed to keeping classes intact as scheduling permits so that students who are assigned to treatment classes in Year 1 (2014-15) continue in treatment classes in Year 2 (2015-16); they have made the same commitment for students assigned to control classes in Y1. Each school will have a stipended Pathway counselor who will ensure student assignment in support of the study design.

SRI will collect quantitative measures of teacher instruction, student use of cognitive strategies, and student writing. All measures described will be either used intact or adapted from prior studies where they have been found to be valid and reliable (Gallagher, et al., 2012; Olson et al., 2012; Kim et al., 2011). Each school will have a stipended School Liaison who will support the original data collection described below. In past studies (e.g., Gallagher et al., 2012), use of stipended school contacts resulted in response rates over 90% for prompts, logs, and surveys. In addition, SRI will collect extant student outcome data and data focusing on implementation fidelity (e.g., hours and content of professional development). A timeline is presented at the end of the measures section.

Quantitative Teacher and Student Outcome Data

³ Any accidental contamination of the control condition from such cross over would cause our experiment to underestimate the true effect of the Pathway Project; however, contamination is unlikely to eliminate enough of the difference between treatment and control teacher practices to outweigh the improved statistical power that comes with teacher-level as opposed to school-level randomization (Rhodes, 2011).

To understand the impact of the intervention on teachers and students, SRI will collect original data—student writing in response to on-demand prompts, teacher logs and surveys, and student surveys—and extant data.

On-demand Writing Prompts. An on-demand writing prompt aligned to text types and purposes articulated in the CA-CCSS-ELA will provide a measure of student writing ability.⁴ Student responses to these writing prompts will be scored using NWP’s Analytic Writing Continuum (AWC) system. The AWC, which was originally modeled after the Six+1 Trait Writing Model, assigns a Holistic score and a score for six attributes of writing: Content, Structure, Stance, Sentence Fluency, Diction, and Conventions (DiPardo, Storms, & Selland, 2011; Singer & LeMahieu, 2012; Swain & LeMahieu, 2012).⁵ The AWC has demonstrated high inter-rater reliability (overall 90% agreement across attributes), test-retest reliability, and internal consistency (Cronbach’s $\alpha = .97$).

SRI will administer writing prompts to all students in 7th - 11th grade focal classes in the fall of 2014 (baseline) and again in spring 2015.⁶ In spring 2016, SRI will administer writing prompts to all students in 8th - 12th grade focal classes. In the spring of 2016, SRI will identify the pool of students who contributed writing samples at all three points in time and select 10 for scoring from each teacher. While this sample limits generalizability to the population of students who remain in these schools for at least 2 years, it provides data from a consistent sample, improving the precision of estimates.

⁴ The AWC was selected as the study’s evaluative framework because it measures key attributes of writing and is without being overly aligned with the Pathway intervention or prompts. In contrast, the on-demand writing prompts administered through Project participation are too over-aligned a measure to serve as a suitable measure of program impact.

⁵ Appendix D includes the AWC’s Holistic scoring guide and descriptions of the attributes, as well as a description of the instrument’s technical properties.

⁶ The selection of a focal class will occur prior to randomization in the fall of 2014, and for 2015-16 will be the class into which treatment and control students from the 2014-15 focal classes are placed by the Pathway counselor. Additionally, SRI will score baseline writing prompts for all students in these focal class rooms to ensure equivalence of the resulting analytic sample after attrition.

Extant Student Data. To assess student achievement on other standardized measures and progression through school, SRI will collect the following district and National Student Clearinghouse data for students in the focal classrooms: ELA achievement test scores from spring 2013, 2014, 2015, and 2016 (all collected in 2016); high school graduation for class of 2016 and 2017; and college matriculation as of the summer of 2017.

Student Surveys. SRI will administer the Pathway-designed Student Strategy Use Survey, a paper and pencil-administered survey, which measures students' use of cognitive strategies for reading and writing.

Teacher Logs. All treatment and control teachers will complete online daily instructional logs for 5 days before the start of the Pathway project and 10 days during the spring of each of the 2 intervention years. These logs will measure expected treatment outcomes (e.g., time spent on writing, the use of cognitive strategies); additional questions for treatment teachers will measure use of Pathway materials.

Teacher Surveys. Online teacher surveys collected from all treatment and control teachers will provide data about teachers' participation in PD on writing, the specific content of PD, teacher background, and expected teacher outcomes (e.g., teacher efficacy, instructional strategies); additional questions for treatment teachers will measure use of Pathway materials and strategies (e.g., technology tools, pre-test revision).

Data on Project Implementation

Phone Interviews and Site Visits. Qualitative data collection will focus on the policies and practices shaping writing instruction at participating schools and districts, perceptions of Pathway implementation, supports and barriers, and perceived outcomes. Interviewees will include CWP site directors and teacher-consultants; district Literacy Specialists; school administrators, counselors, and Literacy Coaches; and both treatment and control teachers. SRI

researchers will conduct interviews using semi-structured protocols. The data will inform formative feedback to the CWP site leaders to help ensure project implementation, identify factors that support teachers' use of Pathway materials and strategies, and describe facilitators and barriers for replicating Pathway in the three CWP sites that are new to Pathway. If survey results suggest any possible contamination or cross-over, interviews will be used to investigate these concerns.

Using a structured observation form, SRI researchers will observe a sample of the PD provided by CWP sites. These observations will assess the extent to which the PD reflects the Pathway model in terms of the content foci and instructional practices it promotes (e.g., using cognitive strategies to do text-based analytic writing). The observations will triangulate teacher reports of PD content used to measure implementation fidelity.

Participation Monitoring. SRI will collect records of teacher participation in Pathway PD and PD content as a measure of implementation fidelity (See Appendix J for timeline).

Data Analysis

Primary Impact Analyses. To assess the impact of the Pathway Project on outcomes of interest, SRI will estimate hierarchical linear models (HLM) with the effect of the intervention estimated at the teacher level (Raudenbush & Bryk, 2002). SRI will use pre-treatment data to check for baseline equivalence between treatment and control groups and adjust for baseline performance in the impact analysis. SRI will then analyze the impact on student and teacher outcomes for each study year to determine whether and when the project had an effect.

Impact analyses will follow the general form below, with models specified depending on the nature of the outcome measure (e.g., continuous vs. binary; teacher- vs. student-level). The model below is for the main outcome of interest, on-demand writing prompts scored on the AWC. The predicted writing ability for student i , taught by teacher j as a function of teacher

assignment to treatment is given as:

$$Y_{ij} = \beta_0 + \beta_1(\text{Treatment}) + \chi_j\beta_2 + \alpha_{ij}\beta_3 + e_{ij} + r_j.$$

Random effects e_{ij} and r_j allow for error at the student and teacher level, respectively.⁷ We will include χ_j , a vector of teacher-level covariates including the teacher's mean baseline score and a vector of district dummy variables, to improve precision of the estimate. Student covariates, α_{ij} , will include the student's demographic characteristics, fall score, and initial grade level. β_1 provides an estimate of the effect of assigning a teacher to the Pathway project on student writing performance (the Intent to Treat effect).

To estimate the impact of the Pathway Project on teacher outcomes (e.g., use of specific cognitive strategies approaches), SRI will compare survey and instructional log indicators of teaching practice using a similar methodology to that used to analyze student-level outcomes. Survey outcomes require a one-level regression model; log data will require a two-level model with teachers at the second level and multiple measurements per teacher at the first level. Baseline data will be imputed as appropriate given the pattern of missingness (at random or not).⁸

Power. To estimate power, with 240 teachers in grades 7-12, 200 of those teachers will be teaching grades 7-11 in year 1 or grades 8-12 in year 2 (representing the five cohorts of students who will spend 2 years in study classrooms). From an earlier NWP study that also used the AWC

⁷ Note that we provide the model for the effects after a single year of treatment for parsimony. Models estimating the impact of treatment on student achievement after two years will include crossed random factors to adjust standard errors for the varying effects of teachers delivering treatment to students in years one and two.

⁸ We will also estimate a second set of the above analysis using hours of writing PD received in each condition as an instrument for treatment. These will provide the effect of the Treatment on the Treated, accounting for the difference in treatment received in each group.

at grades 7 and 8,⁹ SRI estimates that 30% of the variance is at the teacher level. Baseline scores accounted for 49% of variance in the outcomes. These empirically-based assumptions for a two-level HLM with treatment assignment at the teacher level result in a Minimum Detectable Effect Size (MDES) for the main student outcome of 0.176. Based on prior experience with teacher logs (the main measure of teacher instructional practice) we estimate an MDES of 0.174 (with logs for 10 days for each of 240 teachers). These MDES suggest power sufficient to detect substantively meaningful effects on teachers and students. (See Appendix D for power analysis.)

Mediation. The rich quantitative and qualitative data collected will help unpack the causal chain between the resources and PD given to teachers, the change in teacher practice, and the resulting change in student performance. Descriptive OLS and HLM models run within only the treatment group will help understand the correlation between the distinctive features of Pathway and differences in teacher practice. The models estimating student achievement outcomes will be adapted to estimate the relationship between targeted teacher behavior and student achievement. Interviews and observations will triangulate and enrich these findings.

Implementation and Replication. Participation monitoring data will be analyzed to assess implementation fidelity, specifically Pathway teachers' participation in required PD and PD content. Teacher survey data will be analyzed to assess the extent of teacher use of Pathway materials and strategies. Analyses of these data will also examine similarities and differences across sites to assess replication.

Analyses will also measure the treatment-control contrast (e.g., the difference in the amount of writing PD received by treatment and control teachers and differences in the content of that PD). Quantitative data on implementation will be triangulated with data from interviews, which

⁹ (Gallagher, et al., 2012): This randomized controlled trial focused on 7th and 8th grade language arts teachers, thus providing a relatively similar population from which to determine appropriate assumptions for power analyses.

will be transcribed and coded, to provide information on contextual factors related to implementation, replication, contamination, and cross-over (if the latter two occurred).

Evaluation Resources

SRI International and the NWP have worked together since 2006 on randomized trials of NWP professional development. Each organization has a clearly defined role related to its expertise. As the evaluation leader, SRI will supervise the NWP's scoring process, ensuring that it meets the protocols that the NWP follows when using the AWC to ensure student confidentiality and an unbiased and reliable scoring process. SRI and the NWP will follow a detailed work plan that lays out all the tasks needed to accomplish the project objectives, with the associated timeline. Both organizations will meet regularly with Pathway leadership to review progress, problem solve together about any issues in project implementation and evaluation, and to ensure on-time and on-budget deliverables.

SRI International will serve as the independent evaluation contractor with **H. Alix Gallagher, Ph.D.**, **Katrina Woodworth, Ed.D.**, and **Nicole Arshan, Ph.D.** serving as co-principal investigators. Dr. Gallagher's leadership experience includes major studies on teacher PD that use experimental and quasi-experimental designs to estimate the effects of interventions on teacher and student outcomes. Dr. Woodworth has a long record of research on K–12 school improvement efforts and experience leading large, mixed-methods research studies. Dr. Arshan specializes in causal design and experimental and quasi-experimental evaluation of education interventions. The NWP staff who will conduct and manage the independent scoring of the writing assessment include **Dr. Linda Friedrich**, Director of Research and Evaluation, who has a long record of research focused on PD; **Dr. Hee Jin Bang**, Senior Research Associate, who specializes in quantitative analysis; and **Dr. Sherry Swain**, Senior Research Associate, a co-designer of NWP's AWC. (See Appendix F for Resumes of Key Personnel.)