

What Works Clearinghouse



August 2012

WWC Review of the Report “A Randomized Experiment of a Cognitive Strategies Approach to Text-Based Analytical Writing for Mainstreamed Latino English Language Learners in Grades 6 to 12”¹

The findings from this review do not reflect the full body of research evidence on the *Pathway Project*.

What is this study about?

The study examined the impact of the *Pathway Project* intervention on students who were mainstreamed Latino English language learners (ELLs).

One hundred and three English teachers in 15 schools in California were recruited and randomly assigned to either the *Pathway Project* condition or a comparison condition.

The final analysis sample varied by outcome and included up to 50 teachers and 1,417 students in the *Pathway Project* condition and up to 51 teachers and 1,304 students in the comparison condition.

The study assessed the effectiveness of the *Pathway Project* by comparing the English language development and general reading achievement of students in the intervention and comparison groups in the spring of the implementation year.²

WWC Rating

The research described in this report meets WWC evidence standards without reservations

Strengths: This study is a well-implemented randomized controlled trial.

Features of the *Pathway Project*

The *Pathway Project* is a professional development intervention that trains teachers to enhance the reading and writing abilities of mainstreamed ELLs.

Students in the *Pathway Project* intervention first complete a pretest writing assessment, which is used by teachers to identify strengths and areas for growth. Based on their analysis of student writing samples, teachers develop lessons to address individual students' needs. Teachers then use cognitive strategies (such as goal setting, tapping prior knowledge, asking questions, making predictions, and evaluating quality) to focus their text-based analytical writing instruction on these students.

What did the study find?

The study found, and the WWC confirmed, a statistically significant positive effect of the *Pathway Project* intervention on student outcomes in the spring of the implementation year in the English language development domain. The average effect size calculated by the WWC for the English language development domain was 0.22.

The study did not find a statistically significant or substantively important effect in the reading domain.

Appendix A: Study details

Kim, J. S., Olson, C. B., Scarcella, R., Kramer, J., Pearson, M., van Dyk, D., . . . Land, R. E. (2011). A randomized experiment of a cognitive strategies approach to text-based analytical writing for mainstreamed Latino English language learners in grades 6 to 12. *Journal of Research on Educational Effectiveness*, 4(3), 231–263.

Setting The study was conducted in 15 secondary schools (nine middle schools and six high schools) in California's Santa Ana Unified School District (SAUSD). Students in SAUSD are mainstreamed into regular English language arts classrooms when they score in the early advanced or advanced level on the California English Language Development Test (CELDT) or score in the intermediate or mid-basic level on the California Standards Test (CST) in English language arts.

Study sample Students who were identified as English language learners (ELLs) and were eligible for mainstreaming were randomly assigned to classrooms participating in the study. Within each grade and school, English teachers were randomly assigned to either the *Pathway Project* condition or the comparison condition. When a teacher taught more than one English class, the class with the highest percentage of students who scored at or above the intermediate level on the CELDT was selected to participate in the study. The *Pathway Project* materials were designed specifically for students at this level of English language proficiency. The final analysis sample varied by outcome and included up to 50 teachers and 1,417 students in the *Pathway Project* condition and up to 51 teachers and 1,304 students in the comparison condition. A random sample of students was selected to complete the Assessment of Literary Analysis (ALA) measure, resulting in a total of 50 teachers (684 students) in the *Pathway Project* condition and 51 teachers (709 students) in the comparison condition analysis sample. The groups were equivalent on the pretest ALA measure. A total of 95% of the students in the sample were Latino, 88% were ELLs whose primary language spoken at home was Spanish, and 79% were eligible for free or reduced-price lunch.

Intervention group Teachers in the intervention condition received training aimed at helping them enhance the reading and writing abilities of mainstreamed Latino ELLs through text-based, analytical instruction, using a cognitive strategies approach. This approach includes goal setting, tapping prior knowledge, asking questions, making predictions, and evaluating quality. Teachers then used these methods to help students make inferences and form interpretations after reading complex literary texts. Students completed a pretest writing assessment, which was used by teachers to identify strengths and areas for growth. Based on the teachers' analysis of student writing samples, lessons were developed to address individual students' needs.

Comparison group Teachers in the comparison condition received professional development that emphasized interpreting test data and using it to improve CST scores, helping students improve their summarizing strategies during reading activities, forming professional learning communities, and understanding the core English language arts textbook.

Outcomes and measurement

The study assessed students' English language development on the ALA and CST Writing subtest and reading achievement on the CST Reading subtest at both the pretest in October 2007 and the posttest in May 2008. For a more detailed description of these outcome measures, see Appendix B.

Support for implementation

Pathway Project teachers participated in 46 hours of training, including six full-day sessions (six hours each) and five after-school sessions (two hours each) distributed across the school year. Training was led by the developers of the *Pathway Project*. Experienced coaches also helped teachers incorporate cognitive strategies in reading and writing activities in their English language arts classrooms. Throughout the school year, teachers were provided with curriculum materials and a process for implementing the materials, including direct instruction, modeling, and guided practice.

Reason for review

This study was identified for review by the WWC because it was supported by a grant to the University of California, Irvine (Principal Investigator: Carol Olson) from the National Center for Education Research (NCER) at the Institute of Education Sciences (IES).

Appendix B: Outcome measures for each domain

English language development	
<i>Assessment of Literary Analysis (ALA)</i>	This researcher-developed assessment tests the analytical writing skills of students in grades 6–12. After reading a short story, students are prompted to write an analytical essay. The essay is scored by two raters on a 6-point scale on six dimensions: quality and depth of interpretation, clarity, organization, appropriateness and adequacy of textual evidence, sentence variety, and language conventions. The correlation between first and second raters was 0.74. The rubric for scoring was based on the rubric used to evaluate the essay portion of the California High School Exit Examination, the California STAR 7 Direct Writing Assessment, and the National Assessment of Educational Progress. The ALA was administered at both pretest and posttest.
<i>California Standards Test (CST): Writing subtest</i>	The CST is designed to measure student mastery of English language arts in grades 6–11. It includes two writing subtests that measure written and oral English language conventions and writing strategies. The authors of this study created a writing subtest score based on the two writing portions of the CST. Reported reliabilities for the writing subtests range from 0.74 to 0.85 (Educational Testing Service, 2009). ³
Reading	
<i>CST: Reading subtest</i>	The CST also includes three reading subtests which measure word analysis, fluency, and systematic vocabulary development; reading comprehension with a focus on informational text; and literary response and analysis. The authors of this study created a reading subtest score based on the three reading portions of the CST. Reported reliabilities for the reading subtests range from 0.61 to 0.84 (Educational Testing Service, 2009). ³

Note: The CST total score was also used in this study to measure student mastery of the English language arts content standards; however, this outcome is not included in this report. This total CST score is not eligible for review under the WWC’s English Language Learners topic area because it measures both reading and writing achievement, which fall in two separate domains.

Appendix C: Study findings for each domain

Domain and outcome measure	Study sample	Sample size	Mean (standard deviation)		WWC calculations			p-value
			Intervention group	Comparison group	Mean difference	Effect size	Improvement index	
English language development								
<i>Assessment of Literary Analysis (ALA)</i>	Grades 6–12	101 teachers/ 1,393 students	6.44 (1.56)	5.82 (1.56)	0.62	0.35	+14	< 0.01
<i>CST: Writing subtest</i>	Grades 6–12	95 teachers/ 2,721 students	0.04 (0.97)	–0.05 (1.03)	0.09	0.09	+3	< 0.05
Domain average for English language development						0.22	+9	Statistically significant
Reading								
<i>CST: Reading subtest</i>	Grades 6–12	95 teachers/ 2,711 students	0.02 (0.97)	–0.02 (1.03)	0.05	0.05	+2	> 0.05
Domain average for reading						0.05	+2	Not statistically significant

Table Notes: For mean difference, effect size, and improvement index values reported in the table, a positive number favors the intervention group and a negative number favors the comparison group. The effect size is a standardized measure of the effect of an intervention on student outcomes, representing the change (measured in standard deviations) in an average student’s outcome that can be expected if the student is given the intervention. The improvement index is an alternate presentation of the effect size, reflecting the change in an average student’s percentile rank that can be expected if the student is given the intervention. The WWC-computed average effect size is a simple average rounded to two decimal places; the average improvement index is calculated from the average effect size. The statistical significance of the study’s domain average was determined by the WWC; the study is characterized as having a statistically significant positive effect for the English language development domain because univariate statistical tests are reported for each outcome measure, the effect for at least one measure within the domain is positive and statistically significant, and no effects are negative and statistically significant. This study is characterized as having an indeterminate effect because the single effect reported is not statistically significant or substantively important. CST = California Standards Test.

Study Notes: Baseline means for ALA and adjusted posttest means and standard deviations for the CST assessments were provided by the author in response to a request by the WWC. The WWC calculated the intervention group mean for ALA using a difference-in-differences approach (see the *WWC Procedures and Standards Handbook, Appendix B*) by adding the impact of the program (i.e., difference in mean gains between the intervention and comparison groups) to the unadjusted comparison group posttest mean. The post-test means for the *CST Writing and Reading subtests* were adjusted for the *CST* total pretest score from 2007 by the authors of the original study, and the analysis was conducted on standardized outcomes (i.e., the standard deviation of the outcome measure was 1). The effect sizes for all three outcomes are based on a three-level hierarchical linear model, with students nested within classrooms within schools, by grade randomization blocks. A correction for multiple comparisons was needed for the English language development domain but did not affect significance levels. The p-values presented here were reported in the original study.

Endnotes

¹ Single study reviews examine evidence published in a study (supplemented, if necessary, by information obtained directly from the author[s]) to assess whether the study design meets WWC evidence standards. The review reports the WWC's assessment of whether the study meets WWC evidence standards and summarizes the study findings following WWC conventions for reporting evidence on effectiveness. This study was reviewed using the English Language Learners review protocol, version 2.1. The WWC rating applies only to the results that were eligible under this topic area and met WWC standards either with or without reservations, and not necessarily to all results presented in the study.

² One additional outcome was examined in this study, but is not included in this report because the measure assesses an outcome outside the scope of the English Language Learners review protocol: California Standards Test, English Language Arts Total Score.

³ Educational Testing Service. (2009). *California Standards Tests technical report, spring 2008 administration*. Princeton, NJ: Author.

Recommended Citation

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Glossary of Terms

Attrition	Attrition occurs when an outcome variable is not available for all participants initially assigned to the intervention and comparison groups. The WWC considers the total attrition rate and the difference in attrition rates across groups within a study.
Clustering adjustment	If intervention assignment is made at a cluster level and the analysis is conducted at the student level, the WWC will adjust the statistical significance to account for this mismatch, if necessary.
Confounding factor	A confounding factor is a component of a study that is completely aligned with one of the study conditions, making it impossible to separate how much of the observed effect was due to the intervention and how much was due to the factor.
Design	The design of a study is the method by which intervention and comparison groups were assigned.
Domain	A domain is a group of closely related outcomes.
Effect size	The effect size is a measure of the magnitude of an effect. The WWC uses a standardized measure to facilitate comparisons across studies and outcomes.
Eligibility	A study is eligible for review if it falls within the scope of the review protocol and uses either an experimental or matched comparison group design.
Equivalence	A demonstration that the analysis sample groups are similar on observed characteristics defined in the review area protocol.
Improvement index	Along a percentile distribution of students, the improvement index represents the gain or loss of the average student due to the intervention. As the average student starts at the 50th percentile, the measure ranges from -50 to +50.
Multiple comparison adjustment	When a study includes multiple outcomes or comparison groups, the WWC will adjust the statistical significance to account for the multiple comparisons, if necessary.
Quasi-experimental design (QED)	A quasi-experimental design (QED) is a research design in which subjects are assigned to intervention and comparison groups through a process that is not random.
Randomized controlled trial (RCT)	A randomized controlled trial (RCT) is an experiment in which investigators randomly assign eligible participants into intervention and comparison groups.
Single-case design (SCD)	A research approach in which an outcome variable is measured repeatedly within and across different conditions that are defined by the presence or absence of an intervention.
Standard deviation	The standard deviation of a measure shows how much variation exists across observations in the sample. A low standard deviation indicates that the observations in the sample tend to be very close to the mean; a high standard deviation indicates that the observations in the sample tend to be spread out over a large range of values.
Statistical significance	Statistical significance is the probability that the difference between groups is a result of chance rather than a real difference between the groups. The WWC labels a finding statistically significant if the likelihood that the difference is due to chance is less than 5% ($p < 0.05$).
Substantively important	A substantively important finding is one that has an effect size of 0.25 or greater, regardless of statistical significance.

Please see the [WWC Procedures and Standards Handbook \(version 2.1\)](#) for additional details.