

# The Impact of a Reading Intervention for Low-Literate Adult ESL Learners

## Executive Summary

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December 2010

**Larry Condelli**  
**Stephanie Cronen**  
**Johannes Bos**  
American Institutes for Research

**Fannie Tseng**  
**Jacklyn Altuna**  
Berkeley Policy Associates

**Melanie Ali**, Project Officer, Institute of Education Sciences

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Arne Duncan

*Secretary*

**Institute of Education Sciences**

John Q. Easton

*Director*

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## **Disclosure of Potential Conflicts of Interest<sup>1</sup>**

The research team for this study consisted of a prime contractor, American Institutes for Research (AIR), and four subcontractors, BPA, ETS, the Lewin Group, and Mathematica Policy Research, Inc. None of these organizations or their key staff has financial interests that could be affected by findings from the Study of the Impact of a Reading Intervention for Low-Literate Adult ESL Learners. No one on the technical working group, convened by the research team approximately once per year to provide advice and guidance, has financial interests that could be affected by findings from the evaluation.

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<sup>1</sup> Contractors carrying out research and evaluation projects for IES frequently need to obtain expert advice and technical assistance from individuals and entities whose other professional work may not be entirely independent of or separable from the particular tasks they are carrying out for the IES contractor. Contractors endeavor not to put such individuals or entities in positions in which they could bias the analysis and reporting of results, and their potential conflicts of interest are disclosed.

# THE IMPACT OF A READING INTERVENTION FOR LOW-LITERATE ADULT ESL LEARNERS

## EXECUTIVE SUMMARY

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According to the 2008 program year statistics from the U.S. Department of Education (ED), 44 percent of the 2.4 million students in the federally funded adult education program in the United States were English as a second language (ESL) students (ED, 2010). Of these, about 185,000 were at the lowest ESL level, beginning literacy. These students, many of whom face the dual challenge of developing basic literacy skills—including decoding, comprehending, and producing print—along with proficiency in English, represent a range of nationalities and cultural backgrounds. Although the majority of students come from Mexico and other Spanish-speaking countries, there are also students from Africa, India, the Philippines, China, Vietnam, and the Caribbean (Wrigley, Richer, Martinson, Kubo, & Strawn, 2003).

Adult basic education (ABE) and ESL programs, authorized by the Workforce Investment Act and also funded with state and local funds, are designed to assist students in their efforts to acquire literacy and language skills by providing instruction through local education agencies, community colleges, and community-based organizations. The content of instruction within ESL classes varies widely. It is often designed to assist students in their efforts to acquire literacy and language skills by providing a combination of oral language, competency-based work skills, and literacy instruction (Condelli, Wrigley, Yoon, Cronen, & Seburn, 2003). There is, however, little rigorous research that identifies effective instruction. A comprehensive review of published research studies on the effects of literacy interventions for ABE and adult ESL learners (Condelli & Wrigley, 2004) found that out of 17 adult education studies that used a rigorous methodology (i.e., quasi-experimental or randomized trials), only 3 included adult ESL learners (Diones, Spiegel, & Flugman, 1999; St. Pierre et al., 1995; St. Pierre et al., 2003). Furthermore, among the 3 studies that included adult ESL learners, only 1 presented outcomes for those learners, and that study experienced substantial methodological problems that limited the validity of the findings (e.g., a 40 percent overall attrition rate and different attrition rates in the intervention vs. control groups; Diones et al., 1999).

To help improve research-based knowledge of effective instruction for low-literate ESL learners, the National Center for Education Evaluation and Regional Assistance of ED's Institute of Education Sciences contracted with the American Institutes of Research (AIR) to conduct a Study of the Impact of a Reading Intervention for Low-Literate Adult ESL Learners. The intervention studied was the basal reader *Sam and Pat, Volume I*, published by Thomson-

Heinle (2006). The study team consisted of AIR, Berkeley Policy Associates (BPA), the Lewin Group, Mathematica Policy Research, Inc., Educational Testing Service (ETS), and World Education.

The goal of this study was to test a promising approach to improving the literacy skills of low-literate adult ESL students under real-world conditions. In their review of the research on ESL instruction in related fields, including adult second language acquisition, reading and English as a foreign language instruction, Condelli & Wrigley (2004) concluded that instruction based on a systematic approach to literacy development was a promising intervention for low-literate adult ESL learners that would be valuable to study (Brown et al., 1996; Cheek & Lindsay, 1994; Chen & Graves, 1995; Carrell, 1985; Rich & Shepherd, 1993; Roberts, Cheek & Mumm, 1994). Specifically, the factors identified as defining a systematic approach to literacy development included: (1) a comprehensive instructional scope that includes direct instruction in phonics, fluency, vocabulary development and reading comprehension, (2) a strategic instruction sequence, (3) a consistent instructional format, (4) easy-to-follow lesson plans, and (5) strategies for differentiated instruction.

*Sam and Pat* was selected as the focus of the study because it offers an approach to literacy development that is systematic, direct, sequential, and multi-sensory. It also includes multiple opportunities for practice with feedback. Consistent with characteristics identified as promising by Condelli & Wrigley (2004), *Sam and Pat* provides opportunities for cooperative learning, real world tasks, and an explicit focus on reading. In addition, the text was developed for and had been used by the developers with students similar to the study population (literacy level ESL learners).

The impact study used an experimental design to test the effectiveness of *Sam and Pat* in improving the reading and English language skills of adults enrolled in 66 ESL literacy classes at 10 sites. The study addressed three key research questions:

1. How effective is instruction based on the *Sam and Pat* textbook in improving the English reading and language skills of low-literate adult ESL learners compared to instruction normally provided in adult ESL literacy classes?
2. Is *Sam and Pat* effective for certain subgroups of students (e.g., native Spanish speakers)?
3. Is there a relationship between the amount of instruction in reading or English language skills and reading and English language outcomes?

This report describes the implementation of *Sam and Pat* at the study sites, compares the instruction and student attendance in *Sam and Pat* classes with that in the standard adult ESL classes, and examines the impact of *Sam and Pat* on reading and English language outcomes. In addition, the report examines the relationship between instruction, attendance, and student outcomes.

The study produced the following key results:

- ❖ ***More reading instruction was observed in Sam and Pat classes, while more English language instruction was observed in control classes.*** The *Sam and Pat* classrooms spent more time on reading development instruction (66 percent of observed intervals in *Sam and Pat* classrooms compared to 19 percent in control classrooms), and the difference was statistically significant. Conversely, the control classrooms spent more time on English language acquisition instruction (68 percent of observed intervals in control classrooms compared to 27 percent in *Sam and Pat* classrooms), and this difference was also statistically significant.
- ❖ ***Although students made gains in reading and English language skills, no differences in reading and English language outcomes were found between students in the Sam and Pat group and students in the control group.*** On average, students participating in the study made statistically significant gains in reading and English language skills over the course of the term (effect sizes of 0.23 to 0.40). However, there were no statistically significant impacts of *Sam and Pat* on the reading and English language outcomes measured for the overall sample.
- ❖ ***There were no impacts of Sam and Pat on reading and English language outcomes for five of six subgroups examined. For students with relatively lower levels of literacy at the start of the study, there was some suggestive evidence of a positive impact on reading outcomes.***<sup>2</sup> Among students with lower levels of literacy at the beginning of the term, *Sam and Pat* group students scored higher on the Woodcock Johnson word attack (decoding) assessment than control group students (effect size = 0.16). Because this difference was not significant after adjusting for multiple comparisons, however, it is possible that the effect is due to chance alone.

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<sup>2</sup> Lower literacy was defined as scoring at a Grade 2 equivalent or below on the Woodcock Johnson Letter-Word Identification and Word Attack subtests (raw scores of 31 and 9, respectively).



## Summary of Study Design and Methods

The study was designed to estimate the impact of *Sam and Pat* relative to standard ESL instruction (i.e., the kind of instruction ESL students in study sites would receive in the absence of the study) on reading and English language outcomes.

The evaluation employed a randomized research design that included the following:

- ❖ 10 adult education program sites;
- ❖ 33 teachers;
- ❖ 66 classes; and
- ❖ 1,344 low-literate adult ESL learners.

The program sites were a purposive sample. From among the states with the largest adult ESL enrollments, we selected sites that had enrollments of adult ESL literacy learners large enough to support the study design, 2 or more classes for ESL literacy students that met at the same time and in the same location, and an enrollment process that would accommodate random assignment.

Within each site, teachers and students were randomly assigned to one of two groups:

- ❖ The *Sam and Pat* group, which was intended to include a minimum of 60 hours of *Sam and Pat*-based instruction per term, with any remaining class time being spent on the standard instruction provided by the program; and
- ❖ The control group, which consisted of the standard instruction provided by the program.

Teachers (or classes) within each program site were randomly assigned in pairs, so that, within each pair, the *Sam and Pat* and control class met at the same time, in the same or an adjacent building, and for the same number of hours. Data collection for the study occurred between September 2008 and May 2009 with two cohorts of students, one that attended in fall 2008 and the second in spring 2009. Students were tested on the study's battery of assessments, which included tests of reading and English language skills at the beginning of the term and after about 12 weeks of instruction. A description and schedule for the study's data collections are provided in Table ES.1.

The following tests were selected to measure the range of skills that could potentially be impacted by *Sam and Pat*-based instruction:

### Reading Skills

- ❖ Woodcock-Johnson Letter-Word Identification (WJID; Woodcock, McGrew, & Mather, 2001)
- ❖ Woodcock-Johnson Passage Comprehension (WJPC; Ibid.)
- ❖ Woodcock-Johnson Word Attack (WJWA; Ibid.)
- ❖ SARA Decoding (SARA Dec; Sabatini & Bruce, in press)

### English Language Skills

- ❖ Oral and Written Language Scales (OWLS; Carrow-Woolfolk, 1996)
- ❖ Receptive One-Word Picture Vocabulary Test (ROWPVT; Brownell, 2000)
- ❖ Woodcock-Johnson Picture Vocabulary Test (WJPV; Woodcock, McGrew, & Mather, 2001)

**Table ES.1: Data Collection Schedule**

Data Collection	Respondent	Summer 2008	Fall 2008	Spring 2009	Type of Data
Teacher Data Form (2008)	Teachers	X	X		Teacher background information
Teacher Data Form (2009)	Teachers			X	Descriptive information about instructional materials used and <i>Sam and Pat</i> implementation
Student Intake Form	Site Staff on Behalf of Students		X	X	Student background information
Reading and English Language Pre-Tests	Students		X	X	Pre-test data
Reading and English Language Post-Tests	Students		X	X	Outcomes data
Daily Student Attendance Sheets	Teachers		X	X	Dosage/exposure to instruction
Classroom Observations	Evaluation Staff		X	X	Descriptive information about instruction in both groups

The basic analytic strategy for assessing the impacts of *Sam and Pat* was to compare reading and English language outcomes for students who were randomly assigned to either the *Sam and Pat* or the control group, after controlling for student and teacher background characteristics (e.g., gender and ethnicity). The average outcome in the control group represents an estimate of the scores that would have been observed in the *Sam and Pat* group if they had not received the intervention; therefore, the difference in outcomes between the *Sam and Pat* and control groups provides an unbiased estimate of the impacts of *Sam and Pat*.

## **The Adult ESL Literacy Intervention: *Sam and Pat***

The *Sam and Pat* textbook (Hartel, Lowry, & Hendon, 2006) is described by the developers as a basal reader or textbook that tailors the methods and concepts of the Wilson and Orton-Gillingham reading systems developed for native speakers of English (Wilson & Schupack, 1997; Gillingham & Stillman, 1997) to meet the needs of adult ESL literacy level learners.<sup>3</sup> *Sam and Pat* was designed to incorporate the following components of the Wilson/Orton-Gillingham systems:

- ❖ A focus on moving students systematically and sequentially from simple to complex skills and materials;
- ❖ The use of multisensory approaches to segmenting and blending phonemes (e.g., sound tapping);
- ❖ An emphasis on alphabets/decoding, fluency, vocabulary, and reading comprehension;
- ❖ The use of sound cards and controlled text (wordlists, sentences, stories) for practicing skills learned; and
- ❖ Continual review (cumulative instruction) of letters, sounds, and words already learned.

However, when writing *Sam and Pat*, the developers made variations on the base reading systems to make the text useful and relevant to the adult ESL literacy population for which the text was designed. Specifically, *Sam and Pat* differs from the base reading systems on four dimensions:

- ❖ The sequence in which the sounds of English are taught;
- ❖ The words chosen for phonics and vocabulary study;
- ❖ The simplification of grammar structures presented; and
- ❖ The added bridging of systematic reading instruction to ESL instruction.

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<sup>3</sup> Although there is no available research on the effectiveness of *Sam and Pat*, the textbook and its accompanying training and technical support is based on these two reading systems (Wilson & Orton-Gillingham), which have shown promise in teaching struggling readers (Adams, 1991; Clark & Uhry, 1995; Kavenaugh, 1991; Torgesen et al., 2006).

Building on the components of the earlier reading systems, *Sam and Pat* was therefore designed to (1) sequence the teaching of English sound and spelling patterns to ESL students by moving from a focus on simple to complex literacy skills and materials, (2) provide a controlled basal that follows this sequence of patterns, (3) use a simplified grammar, (4) embed a controlled vocabulary that is relevant to the lives of this population of students, and (5) include a collection of stories that are based on simplified themes from daily life.

There are two volumes of *Sam and Pat*, and the Volume 1 literacy textbook was evaluated by this study. It is organized into a total of 22 multi-component lessons. The lessons follow what the developers consider to be an optimal sequence for introducing English phonics and high-frequency English sight words to non-native speakers of English. However, the sequence in which English vowels and consonant sounds are introduced has been modified from that usually used in approaches such as the Wilson and Orton-Gillingham reading systems. For example, like the Wilson System, *Sam and Pat* begins with the short-a sound, but short-a is followed several lessons later by short-u, rather than short-i. This modification was made to provide the maximum sound contrasts for the short vowel sounds that are notoriously challenging for English language learners to discriminate.

Although the current study was a large-scale effectiveness study, we took measures intended to facilitate the implementation of *Sam and Pat*. The *Sam and Pat* developers provided the teachers assigned to the *Sam and Pat* group with training and technical assistance on implementing *Sam and Pat*. The training was developed specifically for the study, and included a 3-day training before the start of the fall 2008 term and a 2-hour refresher webinar before the start of the winter 2009 term. The technical assistance provided to all *Sam and Pat* teachers included a site visit to observe and provide feedback early in the fall term, biweekly phone calls during the first 2 months of the fall term, and additional assistance as needed in response to phone calls and e-mails from teachers. The developers also provided 1 day of individualized assistance in person early in the winter term to teachers who appeared to be having difficulty implementing *Sam and Pat*.

## **Summary of Study Findings**

### **Two-thirds of *Sam and Pat* Classes Observed Demonstrated Evidence of Implementing *Sam and Pat* as Intended**

About two-thirds (65 percent) of the *Sam and Pat* classes observed met the study's instructional fidelity criteria regarding the use of *Sam and Pat* materials and engagement in reading instruction. More specifically, these teachers met the following criteria that were established in collaboration with the developers before the study began:

- ❖ *Sam and Pat* materials must be used for a minimum of 1 hour of instruction per class day;
- ❖ Each class day must include at least 1 hour of instruction in reading development; and
- ❖ Each class day, instruction should occur in at least three of the reading development instructional areas (e.g., phonics, fluency, reading comprehension).

Because we did not observe all hours of instruction throughout the term, we cannot determine how many hours of *Sam and Pat* instruction were received by each student. However, students in the *Sam and Pat* group met for an average of 79 hours total over the course of the term (not shown in tables). The *Sam and Pat* developers recommended that the text be implemented for a minimum of 60 hours per term.

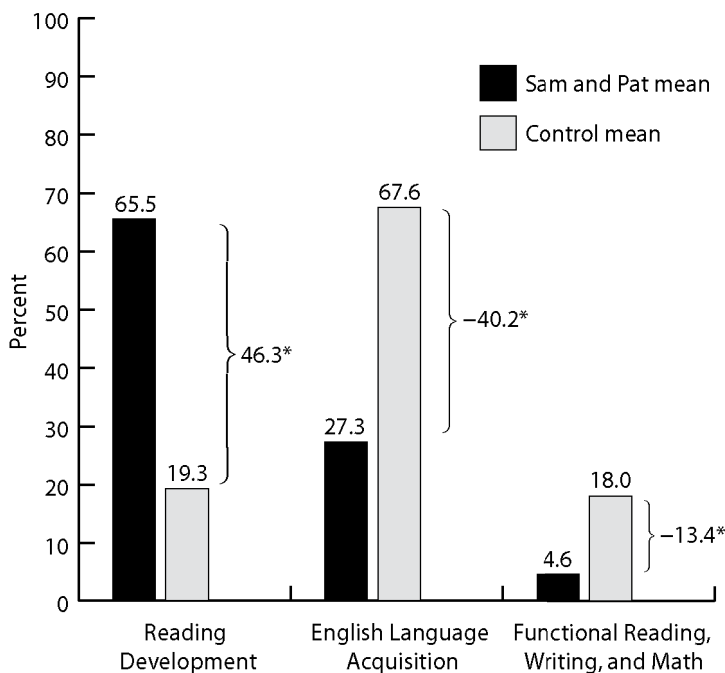
### **More Reading Instruction Observed in *Sam and Pat* Classes, While More English Language Instruction Observed in Control Classes**

The *Sam and Pat* classrooms spent more time on reading development instruction than control classrooms (66 percent vs. 19 percent of observed time intervals, respectively), and the difference was statistically significant (Figure ES.1). Conversely, the control classrooms spent more time on English language acquisition instruction than did *Sam and Pat* classrooms (68 percent vs. 27 percent of observed time intervals, respectively), and this difference was statistically significant. The control classrooms also spent more time on functional reading, writing and math instruction (content related to English language acquisition instruction) than *Sam and Pat* classrooms (18 percent vs. 5 percent of observed time intervals, respectively).<sup>4</sup>

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<sup>4</sup> We can only characterize implementation by reporting that (1) 65 percent of *Sam and Pat* classes met the study's fidelity criteria, and (2) significantly more reading instruction was delivered in these classes, as compared to the control group classes.

**Figure ES.1: Percent of Observed Instructional Intervals Spent in Key Instructional Areas, by Group**



\* Indicates a difference that is significant at the 0.05 level, based on a 2-tailed t-test.

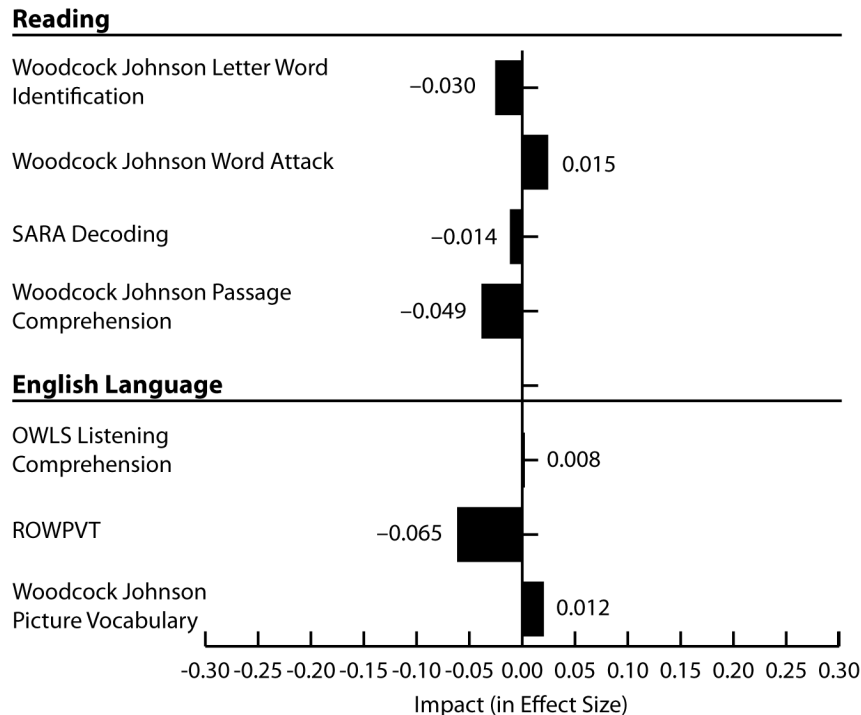
Notes: N = 980 observation intervals for *Sam and Pat* group and 1,034 intervals for control group. Details may not sum to totals. Practices may be coded under multiple instructional areas during any one interval. Source: Adult ESL Literacy Impact Study classroom observation protocol.

### **Students Made Gains, but There Were No Overall Impacts of *Sam and Pat* on Students' Reading and English Language Skills**

On average, students participating in the study made statistically significant gains over the course of the term (effect sizes of 0.23 to 0.40). These gains are equivalent to 1 to 2 months of growth on the reading assessments, and 5 to 6 months of growth on the English language assessments.<sup>5</sup> However, there were no statistically significant impacts of *Sam and Pat* on the reading and English language outcomes measured for the overall sample (Figure ES.2). Effect sizes ranged from -0.06 to 0.01.

<sup>5</sup> It should be noted that publisher guidelines for the grade and age equivalent calculations used to determine months of gains are based on norming populations that differ from the study population. (The WJ assessments were normed on a nationally representative sample of U.S. residents aged 2 to 90+; the OWLS on a representative U.S. sample aged 3 to 21 years; and the ROWPVT on a representative U.S. sample aged 2 to 18 years.) No norming data exist for low-literate adult ESL learners. Additionally, the study used simplified or translated testing instructions when students did not appear to understand the tester's directions. For these reasons, the number of months of growth should be interpreted with caution.

**Figure ES.2: Impact of *Sam and Pat* on Reading and English Language Skills: Differences Between *Sam and Pat* and Control Groups at the End of the Term**



Notes: N = 580 for *Sam and Pat* group and 557 for control group. No impacts were statistically significant at the 0.05 level.

Source: Adult ESL Literacy Impact Study student intake forms and assessments administered at the beginning and end of each term (fall 2008 and spring 2009), and fall 2008 teacher data form.

### **No Impacts of *Sam and Pat* on Reading and English Language Outcomes Found for Subgroups Based upon Student Native Language and Cohort**

There were no statistically significant impacts found for students with a non-Roman-based alphabet background, native Spanish speakers, students from the first study cohort, or students from the second study cohort. Effect sizes ranged from  $-0.14$  to  $0.09$ .

### **Some Suggestive Evidence of a Positive Impact on Reading Outcomes for Lower Literacy Students**

No statistically significant impacts were found for the students in the sample with relatively higher literacy levels (effect sizes ranged from  $-0.08$  to  $0.03$ ). However, there was a suggestive finding for students who tested in the lower literacy score range at the beginning of the term. Within this subgroup, *Sam and Pat* group students scored higher on the Woodcock Johnson word attack (decoding)

assessment than control group students (effect size = 0.16). Because this difference was not statistically significant after adjusting for multiple comparisons, however, it is possible that the effect is due to chance alone. No impacts were found for the lower literacy students on the other reading and English language outcomes measured.

### **Student Exposure to Reading or English Language Instruction Unrelated to Most Reading and English Language Outcomes Measured, Although Weak Relationships Found Between Exposure to Instruction and One English Language Outcome**

Student exposure to instruction was measured by the combination of reading and English language instruction provided in study classes and the number of hours students attended study classes. No statistically significant relationships were found between exposure to instruction and any of the reading outcomes measured and two of the three English language outcomes measured. However, the amount of exposure to English language instruction was positively and statistically significantly correlated with ROWPVT scores. The opposite pattern was found for reading instruction; exposure to reading instruction had a negative and statistically significant relationship with scores on the ROWPVT. However, the standardized coefficients in both cases were small (0.034 and -0.032, respectively). As an example, the 0.034 coefficient on the ROWPVT assessment indicates that, after controlling for total student attendance hours, an increase of 10 percent in the number of English language instruction intervals a student attended is associated with a 0.34 point increase on the test (which had a sample mean of 29). In addition, similar to the student attendance results, we cannot rule out the possibility that the statistically significant relationships were driven by other factors. Therefore, these findings should be interpreted with caution.

### **Generalizability of the Study Findings**

The findings reported in this summary are limited to the specific intervention tested (*Sam and Pat, v. 1*) as implemented within the types of sites included in the study. For example, the study was implemented in sites large enough to offer at least 2 literacy level classes at the same time and location, within a subset of states that have the highest adult ESL enrollments. It is not known whether, or how, the results may generalize to other contexts.



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