The United Class of Intelligence formed by Becky Aten's students at Segerstrom High School in SAUSD.

The Pathway Project: A Cognitive Strategies Approach to Reading and Writing Instruction for Teachers of Secondary English Language Learners

Mirella Fuentes, an 8th Grader, constructs her play-doh creature and learns about cognitive strategies and metacognition.

The University of California-Irvine Writing Project was founded in 1978 to help teachers improve their techniques for teaching writing to their students and enhance their own writing. The UCIWP not only conducts extensive trainings for teachers, but also runs a range of summer youth programs. In addition to its programs, the UCIWP conducts research on language arts pedagogy and curriculum, and publishes materials focused on both curriculum and research.

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Pathway is a collaborative project between the UCI Writing Project in the Education Department at UCI and the Santa Ana Unified School District (SAUSD).

This study is funded by IES through the Teacher Quality Program, Grant # R305W06016

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2009 IES Research Conference

Research questions:

1. To what extent will teachers' involvement in the Pathway Project professional development model change observed teaching practices of analytical reading and writing in secondary school classes serving mainstreamed English Language Learners?

2. To what extent will teachers' implementation of the Pathway Project intervention improve the academic outcomes for mainstreamed English Language Learners on standardized measures of students' analytical reading and writing, including an on-demand direct writing assessment, and high school graduation and college enrollment rates?

Project Goals:

1. A report presenting a **conceptual model** (i.e. the Pathway model) for supporting mainstream ELL students' academic progress through language arts classes in secondary school;
2. A **training manual** describing a strong, strategies-based professional development program for teachers of mainstreamed ELLs;
3. A **sequence of reading/writing intervention materials**, including posters, booklets, tutorials, a metacognition workshop, and scaffolded literature-based lesson plans, customized for grades 6-12, that teachers can implement to develop students' knowledge of the cognitive strategies experienced readers and writers use in the process of meaning construction;
4. A **systematic and explicit intervention** designed to **accelerate the academic English of mainstreamed ELL students** (focusing on idioms, modals, subject-verb agreement, tense, writing in the literary present, transition words, and other areas of English grammar and usage)
5. **Validated instruments** including:
   a. An **assessment of teachers' knowledge** of secondary English/language arts;
   b. A **classroom observation instrument** that measures teachers' instructional practice;
   c. An **assessment of students' analytical writing**.

Professional Development:

Teachers receive staff development in methods for helping struggling readers and writers develop the academic literacy necessary to meet the *California English/Language Arts Content Standards*, and the *English Language Development Standards for California Public Schools*, with special emphasis on

1. the analytical reading and writing abilities targeted for in the 7th grade Standardized Testing and Reporting (STAR) Direct Writing Assessment, and
2. the 10th grade California High School Exit Exam (CAHSEE), (including: literary response and analysis; comprehension and analysis of informational nonfiction texts; and development of clear, coherent focused essays).

Teachers are introduced to and later use in their classes a cognitive strategies reading/writing intervention:

Cognitive Strategies: A Reader's and Writer's Tool Kit

(Source: Olson, 2003, p. 8. Adapted from Flower and Hayes (1981); Tierney and Pearson (1983); Langer (1989); Paris, Wasik and Turner (1991); and Tompkins (1997).

Study Participants, Students:

- 1820 Pathway and 1820 control students, grades 6-12, will participate in the study.
- Assigned to Pathway classes in Year 2 of the project via a random computer sort.
- 6th-12th grade students mainstreamed ELLs in standard language arts.

District Student Demographics

- Sixty percent of the district's students are classified as Limited English Proficient (LEP).
- The vast majority of students are non-native speakers.
- Only 7% of all students are English Only.

Study Participants, Teachers:

Teachers make a three-year commitment and agree to serve as a control teacher if they are not selected as an experimental teacher (control teachers will take over the Pathway classes in Year 4 of the project).

Experimental teachers attend
- six school year in-service days,
- monthly after-school meetings,
- Parent Night and Author's Day.

Experimental teachers receive
- stipend for attending after-school professional development,
- professional development materials,
- and limited services of a trained UCI undergraduate student to serve as a reader during the school year.

Experimental and Control teachers receive equal stipends and equivalent classroom library allocations.

Year One Descriptive Data:

Q 1.) What is the impact of Pathway on California Standards Tests (CSTs) scores in the English Language Arts?

Table 1: CSTs Results—Scaled Scores*

	CST 07	CST 08	Gain	Standard Deviation	N
Control	322.685	324.753	2.068	30.232	1272
Pathway	322.533	327.194	4.661	30.259	1381

***Scale Score**: "One [CST] test form may be slightly more difficult or slightly easier than [a previous year's test, so] an equating process is used to adjust for the difficulty of the forms so that scores from year to year are comparable.... This reporting scale for the CSTs ranges from 150 to 600 and is commonly known as the "scale score" range" (ETS, 2008, p. 198). **Educational Testing Service. California Standards Tests (CSTs) technical report, Spring 2007 administration. Princeton, NJ: Educational Testing Service, 2008.**

Table 2: CSTs Results—Proficiency Levels*

CSTs 07 Proficiency Level *	CSTs 08 Proficiency Level*: Far Below/ Below Basic	Basic	Proficient/ Advanced
Far Below/Below Basic			
Control	67%	32%	1%
Pathway	57%	40%	3%
Basic			
Control	19%	56%	25%
Pathway	18%	61%	21%
Proficient/Advanced			
Control	3%	27%	70%
Pathway	3%	28%	70%

Red Cell: level ***decreased*** **Yellow Cell:** level ***constant*** **Green Cell:** level ***increased***

***Proficiency Levels**: CSTs performance for each student is categorized into one of five proficiency levels: far below basic, below basic, basic, proficient, and advanced.

Q 1. Multilevel Model:

$$CST\text{-}08_{ijk} = \beta_0 + \beta_1 treatment + \beta_2 CST\text{-}07_{ijk} + \mu_j + \mu_{jk} + \epsilon_{ijk}$$

where

$CST\text{-}08_{ijk}$ is the CST 08 scaled score, standardized by grade level, for the i^{th} student in the k^{th} classroom of the j^{th} group

$\mu_j \sim N(0, \sigma_1^2)$ is the random effect for the j^{th} group of teachers,

$\mu_{jk} \sim N(\mu_j, \sigma_2^2)$ is the random effect for the k^{th} teacher in the j^{th} group, and

$\epsilon_{ijk} \sim N(0, \sigma^2)$ is random error

Q 1.) What is the impact of Pathway on California Standards Tests (CSTs) scores in the English Language Arts? (continued)

Table 3: CSTs Results—Multilevel Model

	Value	Standard Error	DF	t-value	p-value
(Intercept)	–0.06	0.03	2556	–1.87	0.06
Pathway	0.06	0.04	52	1.66	0.10
CSTz07	0.69	0.01	2556	48.24	0.00

Q 2.) What is the impact of Pathway on the Pathway Assessment of Literary Analysis?

Table 4: Pathway Assessment of Literary Analysis Pretest/Posttest scores

	Pre-Test*	Post-Test*	Gain	Standard Deviation	N
Control	5.42	5.70	0.28	1.72	694
Pathway	5.27	6.03	0.77	1.69	659

***Range of possible scores: 2-12**

Pathway and Control teachers administered the Pathway Assessment of Literary Analysis, an on-demand literature-based writing assessment, in October 07 and May 08 to determine growth in students' writing. To control for the threats to validity of testing by treatment interaction, the two prompts were systematically administered so that half of the students took one pre-test and half took the other. **Fifty-three trained scorers rated 1353 Pathway assessments on a six-point holistic scale. Each paper was scored twice with 56% exact and 94.6% +/-1 agreement between the two raters**

Results for multilevel model are in favor of pathway students scoring higher on the post test after adjusting for their pretest score (p-value=.009).

Q 2. Multilevel Model:

$$Y_{ijk} = Multinomial(1, \mathbf{P}_{ijk}),\ Y_{ijk} \in \{2, 3, ..., 12\}$$

$$logit[Pr(Y_{ijk} > y)] = \beta_{(0,y)} + \beta_1 treatment + \sum_y \beta_{2y} I[pretest_{ijk} = y] + \mu_j + \mu_{jk}$$

where

$\mu_j \sim N(0, \sigma_1^2)$ is the random effect for the j^{th} group of teachers, and

$\mu_{jk} \sim N(\mu_j, \sigma_2^2)$ is the random effect for the k^{th} teacher in the j^{th} group

Q 3.) What is the impact of Pathway on the Santa Ana Unified School District (SAUSD) Writing Assessment?

Pathway students (M = 44%) **had higher pass rates** than control students (M = 39%) on the SAUSD writing assessment administered in spring 2008.

Q 4.) What is impact of Pathway Professional Development on Classroom Reading and Writing Instruction?

Table 5: Estimated Mean Time Spent on Classroom Reading and Writing Activities

	Mean time spent in five-minute segments of classroom instruction on… All Reading Activities	Higher-order Reading Activities	All Writing Activities	Higher-order Writing Activities	Oral-Language Instruction Activities	Total
Control	2.28 min.	1.09 min.	1.55 min.	0.94 min.	0.89 min.	4.72 min.
sd	1.45 min.	0.99 min.	1.22 min.	1.28 min.	1.09 min.	0.48 min.
Pathway	2.37 min.	1.09 min.	1.79 min.	1.24 min.	0.62 min.	4.78 min.
sd	1.65 min.	1.09 min.	1.50 min.	1.472 min.	0.89 min.	0.49 min.

The UCI-Pathway Adapted CIERA Observation Scheme

A team five of trained observers conducted classroom observations using the UCI-Pathway adapted version of the CIERA Classroom Observation Scheme developed by Taylor and Pearson (2000, 2004) and (b) the laptop-based classroom observation interface we developed in collaboration with CIERA and Developmental Studies Center in Oakland, CA.

Beginning May 23, 2008 and ending June 5, 2008, Pathway observers conducted observations in 97% (90 of 94) of all classrooms in the study. In order to standardize the observations and account for differences in the length of instructional periods across the 14 schools in the Pathway study, observers coded six, five-minute segments of classroom instruction totaling 30 minutes.

* 98% (45 of 46) of experimental teachers were observed;
* 96% (45 of 48) of control teachers were observed.