Every Child a Writer

Program Evaluation 2013

Executive Summary

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Every Child a Writer (ECAW) is a school-wide model of comprehensive writing instruction and assessment (Johnson & Rochester, 2000). The model is based on the foundational structures and principles of Australian genre-based approach, which was imported and adapted by the curriculum and program development at the National Literacy Coalition (NLC).

Periodically, the NLC requests a review of ECAW Member Schools' performance on state writing assessments. As one element of this analysis, these schools' assessment results are compared to the state average for the same group of students. This paper documents these results from ECAW-implementing elementary schools in Colorado, where the model has been used since 2000.

The schools selected for the study include all ECAW "Member Schools" in Colorado. NLC defines a "member school" as a school that has provided all instructional staff complete with the required ECAW professional development seminar, a one credit-hour course. Each school also assures that 100% of instructional staff have access to the ECAW instructional resources (either in paper or digital editions).

Research Design

The four research questions guiding the design of the study were as follows:

- Research Question 1. How did ECAW schools perform relative to the state average?
- Research Question 2. Did ECAW schools demonstrate gains, remain flat, or decline in performance over time?

- Research Question 3. Were the ECAW schools' gain rates (if applicable) at a level equal to, below, or above the state average?
- Research Question 4. Were the ECAW schools' gain scores (if applicable) statistically significant when compared to the state average?

The source of the data used in this analysis is the Colorado Department of Education. Each year, the department releases school and district data spreadsheets documenting student performance on the CSAP/TCAP writing assessments. These documents are available to the general public on the department's website.

A cohort group design was selected as the method of data analysis for this study for several reasons. First, the State of Colorado assesses all students in grades 3, 4, 5, and 6 annually; this allows for comparisons of students on the same scale over a four-year period, thus allowing reasoned inferences regarding school growth over time. Secondly, in 2010, Colorado adopted a growth model for measuring school progress. Finally, the number of Every Child a Writer Member Schools increases annually. This allows for data analysis among "cohort school groups" (schools that became members in the same year), and, within that data set, multiple student cohort groups.

Data Analysis Procedure

The State of Colorado uses a five-level achievement reporting system. These levels include "unsatisfactory," "partially proficient," "proficient," "advanced," and "proficient and advanced." While the data was analyzed for each of these levels, for the purposes of this analysis, the three categories of "unsatisfactory," "proficient and advanced," and "advanced" are

reported. Figure 1 shows a sample data collection sheet. "State totals" was entered from Colorado Department of Education spreadsheets (row 1). ECAW school data was extracted from the same spreadsheets and included in row 2. ECAW data was subtracted from the state totals data. Percentages in each performance category were generated by dividing the numbers in the (#) columns and dividing by the total students.

School	Total Students	Unsatisfactory		Partially Proficient		Proficient		Advanced		Pro & Adv %
		#	%	#	%	#	%	#	%	
STATE TOTALS	61,172	4074	7	25880	42	25614	42	5202	9	50
ECAW CH2	254	8	3.15	91	35.83	124	48.82	31	12.20	61.02
STATE - ECAW	60,918	4,066	6.67	25,789	42.33	25,490	41.84	5,171	8.49	50.33

Figure 1. Sample data analysis sheet

To test for the statistical significance of the results, the t-test procedure was used to analyze each cohort's data set. To determine the mean for the group, point values were assigned based on each student's performance level on the CSAP/TCAP. An "unsatisfactory" score received a point value of 1. A "partially proficient" score received 2 points, a "proficient" score received "3," and "advanced" was assigned a point value of "4." These results were added, and the mean and standard deviations were calculated. For the t-test analysis, a 95% confidence level was set. The *p* values were then calculated for each cohort data set.

Results

The mean gain scores (in percentage of students achieving *proficient and advanced* performance levels) are reported in Figure 36. Across the 11 student cohorts, ECAW schools

achieved a mean gain over baseline of 9.883, while the mean gain for Colorado was 6.777. The difference of 3.106 was found to be statistically significant ($p < .0122$).

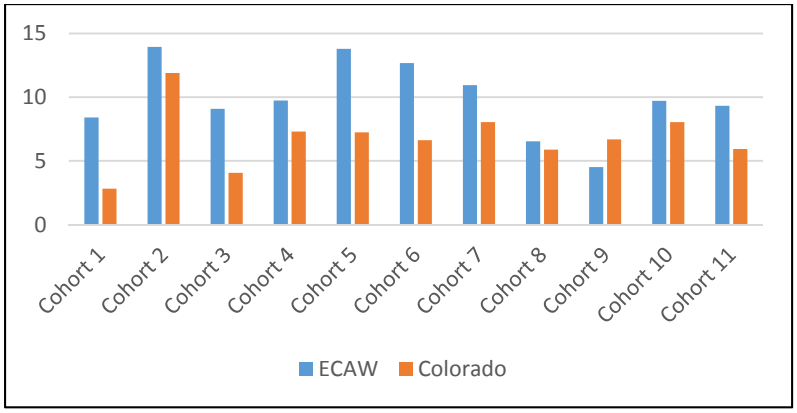

Figure 2. All Cohort Groups Gains over Baseline - *Proficient and Advanced*

The mean gain scores (in percentage of students achieving the *advanced* performance level) are reported in Figure 37. Across the 11 student cohorts, ECAW schools achieved a mean gain over baseline of 5.407, while the mean gain for Colorado was 0.866. The difference of 4.541 was found to be statistically significant ($p < .0004$).

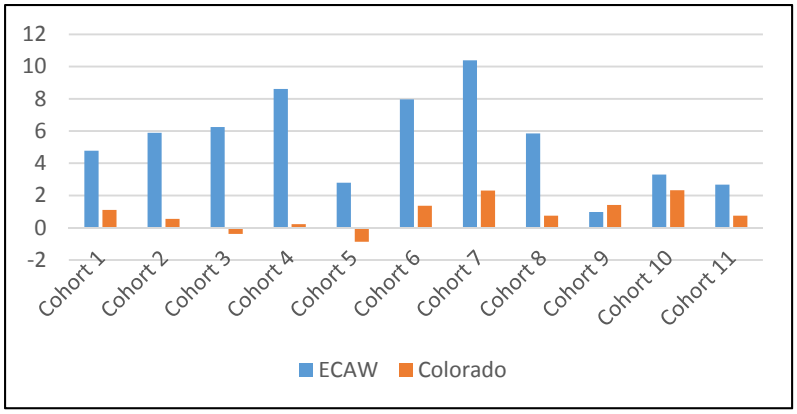

Figure 3. All Cohort Groups Gains over Baseline – *Advanced*

The mean *reduction* scores (percentage of students achieving the *unsatisfactory* performance level) are reported in Figure 38. Across the 11 student cohorts, ECAW schools achieved a mean

reduction from baseline of 1.884, while the mean reduction for Colorado was 1.201. The difference of 0.683 was *not* statistically significant ($p < .3194$).

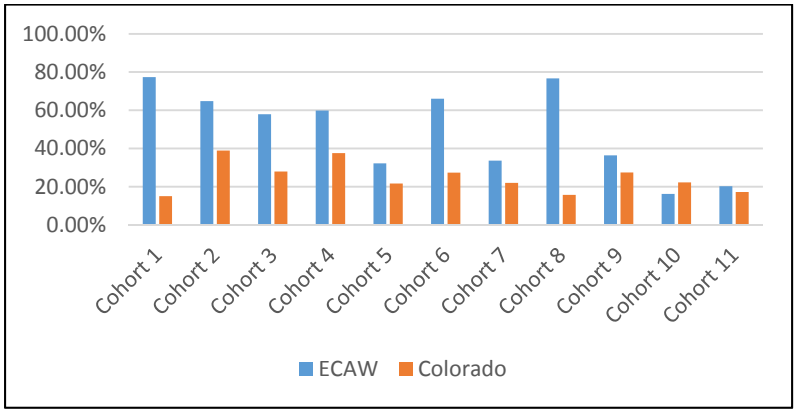

Figure 4. All Cohort Groups Percent Reductions from Baseline – *Unsatisfactory*
Mean Reduction from Baseline: ECAW 49.22%. Colorado 24.84%

The data table in Figure 39 presents the mean baseline and mean *post* (final grade level of implementation) data for each of the 11 student cohorts as well as the gain score differences for each cohort group. The mean baseline assessment levels for the 11 cohorts was 0.1792 for the ECAW schools. Baseline assessment levels for the Colorado cohorts was 0.0947. The difference between these means was 0.0845. Using a t-test analysis, the mean difference between groups was found to be statistically significant ($p < .0014$).

	ECAW Baseline (*M*)	ECAW Baseline (*SD*)	ECAW Post (*M*)	ECAW Post (*SD*)	ECAW Gain over Baseline	Colorado Baseline (*M*)	Colorado Baseline (*SD*)	Colorado Post (*M*)	Colorado Post (*SD*)	Colorado Gain over Baseline	Gain (difference)
Cohort 1	2.819	0.679	2.974	0.6340	0.1550	2.569	0.7294	2.627	0.7623	0.0580	0.0970
Cohort 2	2.821	0.7338	3.106	0.6434	0.2850	2.532	0.768	2.685	0.7179	0.1530	0.1320
Cohort 3	2.829	0.6778	3.031	0.6413	0.2020	2.565	0.7379	2.621	0.7034	0.0560	0.1460
Cohort 4	2.806	0.6765	3.025	0.6749	0.2190	2.519	0.745	2.621	0.7030	0.1020	0.1170
Cohort 5	2.71	0.7537	2.89	0.7047	0.1800	2.539	0.7685	2.621	0.7298	0.0820	0.0980
Cohort 6	2.693	0.7276	2.93	0.6986	0.2370	2.571	0.7376	2.668	0.7191	0.0970	0.1400
Cohort 7	2.701	0.7203	2.932	0.7505	0.2310	2.525	0.7448	2.642	0.7423	0.1170	0.1140
Cohort 8	2.826	0.376	2.95	0.6976	0.1240	2.535	0.7304	2.615	0.7192	0.0800	0.0440
Cohort 9	2.652	0.7176	2.722	0.6919	0.0700	2.57	0.7378	2.669	0.7196	0.0990	-0.0290
Cohort 10	2.629	0.726	2.765	0.7243	0.1360	2.524	0.7499	2.642	0.7427	0.1180	0.0180
Cohort 11	2.647	0.6889	2.779	0.6794	0.1320	2.535	0.7309	2.615	0.7197	0.0800	0.0520
Means	2.739		2.919		0.1792	2.544		2.639		0.0947	0.0845

Figure 5. ECAW Member School and Colorado results: pre- and post-means (*M*) and gains over baseline.

Effect size (*r*) was calculated based on these results. A positive effect size of 0.6532 was found.

	All cohorts gain scores (*M*)	All cohorts (*SD*)	Significance (*p*)	Effect-size (*r*)
ECAW	0.1792	0.0624	< .0014	0.6532
Colorado	0.0947	0.0282		

Figure 6. Figure 7. Comparing ECAW Member Schools and Colorado gain scores (*M*) and measure of statistical significance (*p*-value)

Discussion

The goal of the current study was to answer, in detail, the following research questions:

- Research Question 1. How did ECAW schools perform relative to the state average?
- Research Question 2. Did ECAW schools demonstrate gains, remain flat, or decline in performance over time?
- Research Question 3. Were the ECAW schools' gain rates (if applicable) at a level equal to, below, or above the state average?
- Research Question 4. Were the ECAW schools' gain scores (if applicable) statistically significant when compared to the state average?

As a group, the eleven student cohorts in this study performed significantly above the state average, both in mean scores as well as in the specific performance categories of proficient, advanced, and unsatisfactory. The mean achievement of the ECAW schools was 2.919 as compared to the state mean of 2.639. The difference in means (0.28) was statistically significant at the $p < .0001$ level.

The ECAW student cohorts demonstrated gains (growth) at a level above the state gain rate. Colorado's mean pre- versus post-test gain score was 0.0947. For the same group and time, ECAW schools gain score was 0.1792. The difference in gain scores between groups was significant at the $p < .0014$ level.

Effect size (r) was then calculated based on these gain scores. Cohen (1988) identified the statistical levels of effect sizes as small ($r < .100$), medium ($.100 < r < .243$), and large ($r > .371$). ECAW schools demonstrated an effect size of 0.6532.

The change/growth rate in the performance categories of proficient and advanced, advanced, and unsatisfactory were also examined. ECAW schools showed a mean gain of 9.883 in the proficient and advanced performance level, while Colorado's mean gain was 6.777. The difference in means (3.106) was statistically significant at a $p < 0.0122$ level. This translates to an effect size of $r = 0.5082$.

In the performance category of "advanced," ECAW schools mean gain was 5.407. The Colorado gain rate was 0.866. The difference was statistically significant at a $p < 0.0004$ level. The obtained effect size for the advanced performance level was $r = 0.7278$.

In the "unsatisfactory" performance category, ECAW schools showed a reduction rate in unsatisfactory students of 1.884%, compared to the Colorado reduction rate of 1.201. The difference (0.683) did not meet the standard of statistical significance ($p < 0.3194$).

Considering all of the factors within the current data sets, these ECAW Member School cohort groups demonstrated significantly higher overall achievement and significantly higher rates of growth than the state of Colorado as a whole (as measured by the CSAP/TCAP Writing Assessment) for the years 2007 through 2013. These school cohort groups further demonstrated statistically significant gains in overall performance (mean scores), as well as in the performance categories of *proficient and advanced* and *advanced*. Further, these gains are representative of large effect sizes for treatment ($r = .6532$ overall, $r = .5082$ for proficient and advanced, and $r = .7278$ for advanced).