



# Effectiveness of MAP Goal Setting on Reading for Middle School

May 10, 2010

Student goal setting and academic planning has been a major focus for PUSD, with the aim of increasing the level of student engagement and student ownership over their learning. Goal setting has been implemented in conjunction with the Northwest Evaluation Association's Measure of Academic Progress (MAP) tests, which provide educators with a tool for assessing student growth and learning. Combining goal setting with MAP assessment data allows both teachers and students to translate the raw data from students' assessments into actionable plans for instruction and academic goal setting. Though first implemented in 2003, this is the first study of *MAP Student Goal Setting and Academic Planning* in PUSD and was based on data in grades 3-5 from years 2007-2009.

## Study Description

### Study design

The study addressed the question: Has *MAP Student Goal Setting and Academic Planning* had a positive impact on overall elementary school student literacy scores throughout the district?

This quasi-experimental study used a comparison group design, where the effectiveness of *MAP Student Goal Setting and Academic Planning* was tested by comparing achievement for students who used MAP Goal Setting to achievement of students who did not use MAP Goal Setting.

### Participants

The identification of subjects for this study sought to create conditions that would control for individual differences between the MAP Goal Setting students and comparison groups. A survey was administered to determine which teachers used goal setting in their instructional practices in the 2007-2008 and 2008-2009 school years. Only students with complete performance records whose teachers did not use goal setting in 2007-2008 were considered in the analysis. The MAP Goal Setting group comprised students whose teachers incorporated *MAP Student Goal Setting and Academic Planning* into their instructional practices in 2008-2009; the comparison group comprised students whose teachers did not use goal setting in 2008-2009.

Numbers of participants in the final study analysis are shown in the following table.

	Number of Students	
	Comparison	MAP Goal Setting
Grade 3	44	145
Grade 4	28	113
Grade 5	80	95
Total	152	353

This study was provided as a MeasureResults<sup>®</sup> service by Empirical Education Inc.


[www.empiricaleducation.com](http://www.empiricaleducation.com)


## Outcome measures and calculations


Findings of this study are based on data from the English-Language Arts California Standards Test, administered in the 2007-2008 and 2008-2009 academic years.

Estimates of the program impact were obtained using differences-in-differences estimation, which removes biases resulting from the differences between treatment and comparison groups by comparing year to year changes in performance between students who remain in the comparison condition and those who move to the treatment (MAP Goal Setting) condition.

**Levels of confidence in our results:** Results are reported based on statistical calculations that give a measure of confidence expressed as a probability or *p* value. A low *p* value indicates a low probability that we would detect a difference like the one found in the study if no difference actually existed. A *p* value less than .05 gives us strong confidence in the result (a level conventionally called statistically significant), while a *p* value greater than .20 gives no confidence. Between the two we may have some or limited confidence. Bar graphs use the conventions shown in the table to the right. The confidence intervals on two adjacent bars are to be interpreted as: "an 80% probability exists that the tops of the bars simultaneously fall somewhere within their respective interval." Where the *p* value is greater than .20, the intervals overlap. Estimates of the size of the difference are generally in the measurement scale and may also be expressed as percentile ranks.

Results for the **control or comparison** group are shown as 

Results for the group using the **program** being tested are shown as 

We also provide the 80% confidence intervals for some bar graphs 

## Results

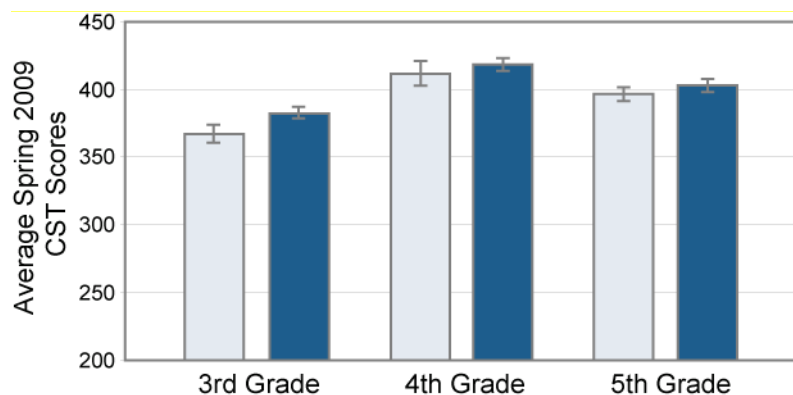
### Has *MAP Student Goal Setting and Academic Planning* had a positive impact on overall elementary school student literacy scores throughout the district?

*Yes, MAP Student Goal Setting and Academic Planning had a positive impact on CST English-Language Arts outcomes.*

The estimates of the impact of *MAP Goal Setting* on year to year changes in CST scores by grade are shown in the following table. The estimates are given in CST scale score points (difference in average change from Spring 2008 to Spring 2009 between MAP Goal Setting and comparison groups adjusted for confounding factors) and corresponding percentile points of score distributions.

MAP Goal Setting Gains Between Spring 2008 and Spring 2009				
	CST scale score	Effect size	Percentile points	<i>p</i> value
<b>Grade 3</b>	15.7	0.25	10	.01
<b>Grade 4</b>	7.04	0.13	5	.37
<b>Grade 5</b>	6.76	0.14	5	.23

On average, 3<sup>rd</sup> graders who participated in MAP Goal Setting scored 15 points higher than expected on CST Reading, which corresponds to approximately 10 percentile points of the score distribution. The *p* value of this estimate (*p*=.01) suggests that we can be confident about the existence of a positive effect of MAP Goal Setting on the performance of 3<sup>rd</sup> graders. 4<sup>th</sup> and 5<sup>th</sup> graders who participated in MAP Goal Setting scored around 7 points (7.04 and 6.76 respectively) higher than expected on CST Reading but neither result can be established with confidence as the *p* values exceed .20 (.37 and .23 respectively).



**Figure 1. Effect of MAP Student Goal Setting and Academic Planning on Elementary CST Achievement in English Language Arts**

The accompanying graph displays this positive effect of *MAP Student Goal Setting and Academic Planning* in the 2008-2009 school year. Students who used MAP Goal Setting (represented by the darker bars) scored higher than the comparison groups. The dark lines representing confidence intervals show, however, that the benefit of the program can be established only for the 3<sup>rd</sup> graders with some confidence.

### Conclusion

The results of this study suggest that *MAP Student Goal Setting and Academic Planning* may have a positive impact on CST English Language Arts achievement. The fact that the effect cannot be established with confidence for the 4<sup>th</sup> and 5<sup>th</sup> grade students may be due to the small sample size.

PUSD plans to continue studying the effectiveness of *MAP Student Goal Setting and Academic Planning* in the district. A follow up study is planned in order to factor in a larger sample of teachers and students.

#### **Cautions for interpreting these results:**

The major limitation for this study was the low response rate among teachers who did not use goal setting and the lack of information about the use goal setting in the years prior to 2007-2008. The resulting small sample size, and in particular the small number of subjects in comparison groups, is not likely to provide an adequate foundation for making larger conclusions about the impact of the program. The presented results should be considered as tentative; the effect size estimates in future studies may be larger or smaller than those reported here.