

# High Stakes Test Outcomes in CPAA Users & Non-Users in the State of Mississippi



# Introduction

During the 2007 session, the Mississippi Legislature passed House Bill 1058, establishing section 37-23-16 of the Mississippi Code, which requires the State Department of Education to implement early literacy and numeracy screening assessment instruments.

The law required screening of students in Kindergarten through Grade 3, beginning with the 2008-2009 school year. After performing an analysis of commercially available literacy and numeracy assessment instruments, the Mississippi Department of Education (MDE) issued a Request for Proposals (RFP) in August 2008. The State Board of Education approved the proposal for the Children's Progress Academic Assessment (CPAA) in February 2009.

The MDE's plan was to implement the CPAA in approximately 20% of school districts in the Spring of 2009, 60% of school districts in 2009-10, and 100% of school districts in 2010-11.

The CPAA assesses concepts in literacy and mathematics for students in Pre-Kindergarten through Grade 3. The screening assessment was first used in Mississippi in the Spring of 2009 and usage expanded substantially in the 2009-2010 school year.

# Methods

During the 2009-10 school year, approximately 57% of Grade 3 Mississippi students participated in the CPAA screening program. Children's Progress obtained score data for the Mississippi Curriculum Test, Second Edition (MCT2), a mandatory state-wide achievement test, from all Grade 3 students in the state, including the 43% of students whose schools did not participate in the initial CPAA implementation.

Scores on the MCT2 were compared between students who did and did not use the CPAA. Only students who completed all three seasonal administrations of the CPAA were included in the analysis, resulting in a group of full-year CPAA users (n=18,921) and a group of non-CPAA users (n=16743).

Since these groups were not randomly assigned, they differed in overall size and distribution of certain co-variables, most notably ethnicity. The distribution of ethnicity in the CPAA using group and the non-CPAA group is summarized in Table 1.

**Table 1.** Distribution of Ethnicity in the MDE 2009-2010 Grade 3 Population

	CPAA Users		Non-CPAA Users	
White	9468	50.0%	7002	42.2%
Black	8657	45.8%	9005	54.3%
Hispanic	566	3.0%	410	2.5%
Asian	197	1.0%	131	0.8%
Not Specified	32	0.2%	46	0.3%
Total	18920	100%	16594	100%

To correct for the variable ethnic make-up of the two groups, a balancing procedure was performed whereby a sub-sample of each group was randomly selected to build two comparable groups with identical distributions of ethnicity.

First, the proportion of each ethnic group found in the combined student population was computed. Then, individuals were randomly selected from both the CPAA group and no-CPAA group to compose two groups, each of which matched these average values.

As a result, the balanced groups each reflected the distribution of ethnicity found in the overall student sample. The resulting comparison groups are shown in Table 2.

**Table 2.** Ethnically Balanced Groups following Randomly Selected Values Procedure

	CPAA Users		Non-CPAA Users	
White	7000	46.6%	7000	46.6%
Black	7500	49.9%	7500	49.9%
Hispanic	400	2.7%	400	2.7%
Asian	130	0.9%	130	0.9%
Total	15030	100%	15030	100%

## Results

These student data were analyzed to evaluate the effect of CPAA use on MCT2 scores for English language arts and Mathematics. The mean MCT2 English language arts scale score for the CPAA user group was higher ( $m=149.84$ ,  $SD=11.75$ ) than the non-user group ( $m=148.18$ ,  $SD=11.99$ ). The mean MCT2 mathematics scale score for the CPAA user group was higher ( $m=153.18$ ,  $SD=11.97$ ) than non-user group ( $m=150.95$ ,  $SD=12.10$ ).

The difference between the two groups is extremely statistically significant ( $p < 0.0001$ ) and represents a Cohen's  $d$  effect size of 0.14 for English language arts and 0.19 for Mathematics. After a single full year of CPAA screening in Grade 3, 5.6% more students met or exceeded standards in English language arts (52.2% of CPAA users compared to 46.6% of non-CPAA users), which represents a 12.1% relative increase. In mathematics, 7.3% more met or exceed standards in mathematics (62.5% of CPAA users compared to 55.2% of non-CPAA users) which represents a 13.2% relative increase.

## Discussion

The design and intent of the CPAA is to provide formative data that drives differentiated instruction and improves student learning outcomes. Improved learning outcomes, as reflected in MCT2 scores, were observed in Grade 3 students after just one year of CPAA use.

The optimal implementation of the CPAA is as a formative screening tool administered at least three times per year from school entry through the end of Grade 3. While data are not available at this time to evaluate the effect of long-term CPAA use on achievement test scores, the preliminary data reported above for Grade 3 support the promise of using the CPAA in a fully implemented formative screening process.