

Caveon Test Security Audit for
Cesar Chavez Academy – Oral
Report
December 5, 2009

Commissioned by
Colorado Department of Education

Overview

- Onsite test security audit interviews were conducted at Cesar Chavez Academy October 19 and 20, 2009 as well as by phone in the following two weeks.
 - Review the CSAP test security policies
 - Detect anomalous and inconsistent behaviors.
- CSAP test data were analyzed using Caveon Data Forensics
 - Describe and document anomalies, if any.
 - Relate anomalies to potential testing irregularities.

Interview Findings

- Cesar Chavez staff were cooperative and helpful in the process
- Training, policy and procedures for CSAP testing were explored
- CSAP test administration training, as well as policy and procedures were discussed
- We found no evidence of:
 - Answer sheet tampering
 - Improper coaching
 - Teaching to the test
 - Unauthorized extension of testing sessions
 - Cheating* on tests by students or staff
- Nothing conclusive was found from community members wishing to comment.

* Cheating – when someone has been given an unfair advantage. Since Caveon was unable to observe the process to determine who gets extra-time accommodations, the results were inconclusive.

Interview Findings

Extra-Time Accommodation

- Proctors provided extra-time accommodations for students deemed eligible for extra-time
- Extra-time accommodation eligibility was determined by committee
- Interview answers did not reveal how the committee allotted extra-time accommodations to students

Interviews

- All staff involved with CSAP testing in 2009 were interviewed including:
 - All Teachers (but one)
 - Directors
 - School Psychologist
 - School Assessment Director
 - Community members who identified themselves as wanting to comment
 - SD 60 Assessment Director

Data Forensics Findings

- At Cesar Chavez (CCA), we found no evidence of:
 - Answer sheet tampering (through erasures)
 - Test coaching (through similar test analysis)
 - Unusual gains from prior years
 - Unexpectedly high scores
- At CCA, we did find evidence of unusual allotment of extra-time accommodations
- At Dolores Huerta, we found no evidence of any form of testing irregularity
- If improper assistance was provided to the students while taking the test, it was done on an individual basis.

Data Forensics Findings

Extra-Time* Accommodations at CCA

- Normal rates of extra time were found in 2006.
- Extreme rates of extra time accommodations for all grades in 2007 and 2008.
- Extreme rates of extra time accommodations during 2009, especially for grades 7 and 3.
- Process for granting extra time accommodation was inconsistent from 2008 to 2009
- Process for granting extra time accommodation was inconsistent in 2008 from process in 2009 used by other schools

* *as determined by CSAP Accommodations Flag*

Data Forensics Method

- Compute statistics by test for entire state
 - Similarity
 - Erasures
 - Gains
 - Accommodations: Extra Time and Oral Help
- Tabulate flags by schools to detect concentrations
- In-depth analysis of data from Cesar Chavez

Interpretation of Data

- Extreme data are expressed as index values
- Probability = $10^{-\text{index}}$
- An index value of 5 is usually “extreme” and represents one chance in 100,000.
- An index value of 10 represents one chance in 10,000,000,000.

School Tabulation (2009)

- 1,713 schools
- 1,563,204 test instances
 - Subjects: Math, Reading, Writing, Science
 - All grades and subjects are pooled
- CCA Index values
 - Mean score, 67.6%
 - Overall index, 174.0
 - M4 Similarity index, 0.5
 - Erasures index, 0.3
 - Gains index, 0.2
 - Extra Time index, 177.0
 - Oral Help index, 1.8
- Conclusion: CCA is extreme for an excessive number of tests with extra time accommodations in 2009. (A similar pattern was found in 2007 and 2008 but not 2006.)

School-Grade Tabulation (2009)

- 5,608 school-grade combinations (pool subjects)
- Probability= $10^{-\text{index}}$; Extreme=5.75; Marginal=4.73

Grade	Observed	Expected	Index
3	18%	4%	20.8
4	24%	9%	17.9
5	13%	7%	5.0
6	18%	7%	13.4
7	48%	5%	140.4
8	13%	5%	12.0

School-Grade-Subject Tabulation (2009)

- 18,731 school-grade-subject combinations
- Probability= $10^{-\text{index}}$; Extreme=6.27; Marginal=5.25

Grade Subj.	Observed	Expected	Index
3/M	24%	2%	19.0
3/R	9%	7%	0.8
3/W	20%	4%	10.6
4/M	24%	4%	14.3
4/R	24%	11%	4.4
4/W	24%	11%	4.4

School-Grade-Subject Tabulation (2009)

(Continued; Extreme=6.27; Marginal=5.25)

Grade Subj.	Observed	Expected	Index
5/M	11%	5%	2.1
5/R	15%	11%	1.0
5/Sci	11%	3%	4.9
5/W	15%	11%	1.0
6/M	21%	4%	11.8
6/R	17%	8%	3.0
6/W	17%	8%	3.0

School-Grade-Subject Tabulation (2009)

(Continued; Extreme=6.27; Marginal=5.25)

Grade Subj.	Observed	Expected	Index
7/M	28%	4%	22.9
7/R	57%	6%	61.6
7/W	57%	6%	61.4
8/M	25%	4%	13.4
8/R	8%	6%	0.8
8/Sci	10%	2%	4.3
8/W	8%	6%	0.8

Year-by-Year Tabulations

- Grade-Subject Rate Comparisons
- If Index > 12 , rate is highlighted with red.
- If Index > 8 , rate is highlighted with gold.
- If Index > 4 , rate is highlighted with tan.
- 2007 and 2008 were the most extreme years
- Residual effects were present in 2009

Extra Time 2006

Red (>12); Gold (>8); Tan (>4)

	3	4	5	6	7	8
2006-math (ALL)	5.6%	6.6%	6.8%	5.0%	4.7%	4.5%
2006-math (CCA)	4.1%	12.1%	14.8%	1.6%	9.9%	13.2%
2006-read (ALL)	12.2%	14.2%	13.2%	9.3%	7.0%	5.8%
2006-read (CCA)	28.6%	18.2%	22.2%	3.2%	9.8%	15.1%
2006-writ (ALL)	6.8%	14.2%	13.2%	9.3%	7.0%	5.8%
2006-writ (CCA)	2.0%	18.2%	22.2%	3.2%	9.8%	15.1%
2006-sci (ALL)			4.9%			3.1%
2006-sci (CCA)			16.7%			15.1%

“All” pertains to all schools in the state. Extra time is % of students who received an extra time accommodation.

Extra Time 2007

Red (>12); Gold (>8); Tan (>4)

	3	4	5	6	7	8
2007-math (ALL)	5.3%	6.4%	7.1%	6.0%	4.8%	4.7%
2007-math (CCA)	77.5%	50.0%	60.8%	36.7%	40.3%	36.5%
2007-read (ALL)	11.2%	13.0%	13.0%	10.9%	7.0%	6.3%
2007-read (CCA)	68.1%	50.0%	60.8%	36.7%	40.3%	34.4%
2007-writ (ALL)	6.5%	13.0%	13.0%	10.9%	7.0%	6.3%
2007-writ (CCA)	77.5%	50.0%	60.8%	36.7%	40.3%	34.4%
2007-sci (ALL)			4.9%			3.2%
2007-sci (CCA)			60.8%			35.4%

Extra Time 2008

Red (>12); Gold (>8); Tan (>4)

	3	4	5	6	7	8
2008-math (ALL)	2.8%	4.6%	4.8%	4.2%	3.7%	3.4%
2008-math (CCA)	37.4%	84.3%	86.9%	46.2%	12.0%	37.1%
2008-read (ALL)	7.6%	10.5%	9.0%	8.2%	6.2%	4.9%
2008-read (CCA)	25.9%	95.0%	97.0%	64.3%	24.8%	41.7%
2008-writ (ALL)	4.2%	10.5%	9.0%	8.2%	6.2%	4.9%
2008-writ (CCA)	36.4%	95.0%	97.0%	64.3%	24.8%	41.7%
2008-sci (ALL)			2.9%			2.2%
2008-sci (CCA)			31.3%			0.0%

Extra Time 2009

Red (>12); Gold (>8); Tan (>4)

	3	4	5	6	7	8
2009-math (ALL)	2.5%	4.2%	4.9%	4.4%	3.8%	4.3%
2009-math (CCA)	23.9%	24.4%	10.6%	21.3%	28.0%	25.5%
2009-read (ALL)	6.6%	10.8%	10.6%	8.4%	5.9%	5.7%
2009-read (CCA)	9.2%	23.6%	14.6%	16.9%	57.3%	8.5%
2009-writ (ALL)	3.5%	10.8%	10.6%	8.4%	5.9%	5.7%
2009-writ (CCA)	19.7%	23.6%	14.6%	16.9%	57.3%	8.5%
2009-sci (ALL)			2.9%			2.4%
2009-sci (CCA)			11.4%			10.4%

Overall Finding

- Accommodation rate - decreased in 2009 but was still extreme in some grades
- Accommodation rate – was not at the same rate for all grades
 - Were some grade cohorts* in greater need of accommodation?
 - Why were students flagged in 2008 but not in 2009? What changed?

*Grade cohort – refers to similarities within the same group; In this case grade levels -- 3rd graders, 4th, 5th, etc.

Looking at Accommodation Rates by Cohort and Transition Group

- Method: Count flags for students taking the test in both years, 2008 and 2009 (a student that gets an accommodation is flagged).
- Extra-time flags should be consistent between years
 - Those not flagged should continue to not be flagged
 - Those flagged should continue to be flagged
- Three transition groups
 - Students moving into CCA in 2009 (Moved in)
 - Students moving from CCA in 2009 (Moved out)
 - Students within CCA for both 2008 and 2009 (Stayed)

Accommodation – “Stayed”

observed (expected)

Math	2009 - same	2009 - diff		Chi-sq
2008 (0)	182 (117)	40 (104)		143.7278
2008 (1)	65 (129)	180 (115)		
Read	2009 - same	2009 - diff		Chi-sq
2008 (0)	144 (90)	41 (94)		101.9829
2008 (1)	86 (139)	199 (145)		
Writ	2009 - same	2009 - diff		Chi-sq
2008 (0)	135 (82)	38 (90)		101.2595
2008 (1)	89 (141)	208 (155)		

2008 (0) means no extra-time accommodation in 2008

2008 (1) means extra-time accommodation given in 2008

The Chi-Square statistic tests whether the proportion of students who received an extra-time accommodation in 2008 was consistent with the proportion for 2009. The critical value at the .05 level is 3.84. In all three subjects from 2008 to 2009 for the students who remained at CCA, an unexpectedly large number of students were not given an extra-time accommodation in 2009, even though one was given in 2008.

Accommodation – “Moved Out”

observed (expected)

Math	2009 - same	2009 - diff	Chi-sq
2008 (0)	31 (6)	0 (24)	143.1205
2008 (1)	1 (25)	117 (92)	
Read	2009 - same	2009 - diff	Chi-sq
2008 (0)	55 (30)	5 (30)	72.15447
2008 (1)	16 (41)	66 (41)	
Writ	2009 - same	2009 - diff	Chi-sq
2008 (0)	55 (29)	4 (29)	74.56921
2008 (1)	16 (41)	66 (40)	

2008 (0) means no extra-time accommodation in 2008

2008 (1) means extra-time accommodation given in 2008

The Chi-Square statistic tests whether the proportion of students who received an extra-time accommodation in 2008 is consistent with the proportion for 2009. The critical value at the .05 level is 3.84. In all three subjects from 2008 to 2009 for the students who left CCA and moved to another school, an unexpectedly large number of students were not given an extra-time accommodation in 2009, even though one was given in 2008.

Accommodation – “Moved In”

observed (expected)

Math	2009 - same	2009 - diff	Fisher's
2008 (0)	113 (111)	28 (29)	.4334
2008 (1)	5 (6)	3 (1)	
Read	2009 - same	2009 - diff	Fisher's
2008 (0)	110 (107)	25 (27)	.0644
2008 (1)	5 (7)	5 (2)	
Writ	2009 - same	2009 - diff	Fisher's
2008 (0)	111 (108)	25 (27)	.1580
2008 (1)	5 (7)	4 (1)	

2008 (0) means no extra-time accommodation in 2008

2008 (1) means extra-time accommodation given in 2008

Fisher's Exact Test is used to see whether the proportion of students who received an extra-time accommodation in 2008 is consistent with the proportion for 2009, when expected cell values are lower than 5. In all three subjects from 2008 to 2009 for the students who moved into CCA from another school, the students who were given an extra-time accommodation in 2009 were also given one in 2008.

Summary of Transitions

- The method by which extra time accommodation was determined at CCA in 2008 was not consistent within CCA in 2009 and for students who left CCA in 2009
- Students that moved and had extra-time changes (flags were different from 2008 to 2009):
 - 348 total changes
 - 327 changes were for students with extra-time assignment granted at CCA (94%) but no extra-time assignment at the other school

Observations about Transition Groups

- Many students were given extra time at CCA in 2008 but the same students were not given extra time in 2009, whether at CCA or another school.
- The data suggest the method of extra time assignment at CCA was different between 2008 and 2009.

Data Forensics Summary

- Large numbers of students were given Extra-Time accommodation at CCA, especially in 2007 and 2008. The data were extreme for 2007, 2008, and 2009.
- Evidence suggests that extra time assignment was not granted consistently at CCA from 2008 to 2009.
- There were no additional data forensics indications of testing irregularities in 2009 on the part of educators (other than inconsistent assignment of extra time from grade to grade in 2009).
- If improper assistance was provided to the students while taking the test, it was done on an individual basis, in 2009.

Possible Next Steps

- Have special services professionals review cases at CCA involving placement rules, policies, and procedures
- Involve SD 60 personnel and CCA staff in these meetings
- Determine training needed for consistency throughout the special services program
- Invalidate suspect test scores from CCA and re-administer the CSAP to affected students
- Compare special accommodation rates for consistency between SD 60 policy and CCA procedures.
- Tests shipped from SD 60 to CCA should be signed for by the director and immediately locked in a room instead of the front desk signing for them
- Review special student placement procedures with District 60
- Improve special student placement procedures by conducting onsite reviews