

A study of course-taking patterns by ethnicity in two inner city schools.

From time to time we are asked if CPM is suitable for students in inner city schools. To investigate this question, we looked at the data from the two San Francisco schools that use CPM: Philip and Sala Burton High School and Thurgood Marshall High School. In the mid-1980's, as a result of a consent decree, both schools were designated "academic" high schools and the name has persisted, even though both schools are now general high schools and draw their students from surrounding neighborhoods. Thus, they do represent an example of what typical inner-city schools can become. A significant factor in their success in mathematics has been that both of these schools have been excellent implementers of the CPM program, since most teachers have attended workshops for at least one, and often, two years.

All of the data comes from the California Department of Education web site for 2005. The data used is from the DataQuest link on that site, downloaded for each individual school. The comparison schools were selected among those that had the closest SCI (School Characteristic Index) to the two CPM San Francisco schools. The SCI is used by the state to compare one school with another and is based on such things as ethnic mix, teacher turnover, percentage of free and reduced lunch, etc. Comparison schools were chosen that were urban in character and neither another CPM school nor a magnet school. Among these schools, we investigated the effect on the course-taking patterns of African American students and Hispanic students.

The raw data from the state has two categories of advanced math classes: intermediate algebra and advanced math. The data looked odd with some schools reporting no one in one group or the other, so the two numbers were added together under the heading "Combined Math." The state data for chemistry and physics were used as reported. For each category the median percentage of students from the various comparison schools in each class were computed, but only for those schools that had at least 100 students. We also compute a "Combined Group Mean" by adding up the total number of, say, Hispanic females in chemistry in all comparison schools and dividing by the total number of Hispanic females among these schools.

Notice how well the two CPM schools do in all categories. The percentage of students taking math at the two CPM schools is about double that in the comparison schools and the data is even stronger in chemistry course-taking patterns.

Marshall High School Mathematics

AFRICAN AMERICAN	Females			Males		
	Combined Math		9-12 Enrollment	Combined Math		9-12 Enrollment
	Number of Students			Number of students		
Northview High	13	30.3%	43	8	14.9%	54
La Sierra High	35	29.2%	120	21	16.0%	131
Schurr High	3	21.3%	13	1	14.3	7
Cathedral City High	11	25.6%	43	8	19.5%	41
California High	3	20.0%	15	2	22.2%	9
Rosemead High	1	12.5%	8	1	16.7%	6
Valley View High	50	20.2%	247	31	13.4%	231
Arlington High	21	24.7%	85	19	22.1%	86
Marshall High	61	44.9%	136	41	37.6%	109
Group Median		27.0%			15.5%	
Group Mean		23.9%			16.1%	

HISPANIC	Females			Males		
	Combined Math		9-12 Enrollment	Combined Math		9-12 Enrollment
	Number of students			Number of students		
Northview High	115	23.2%	496	96	19.7%	489
La Sierra High	140	20.2%	516	81	15.3%	530
Schurr High	222	17.0%	1304	177	12.7%	1392
Cathedral City High	187	20.4%	914	116	12.3%	945
California High	228	20.7%	1102	160	14.6%	1091
Rosemead High	51	9.1%	564	37	6.8%	540
Valley View High	103	20.0%	516	81	15.3%	530
Arlington High	163	31.4%	519	104	20.2%	516
Marshall High	22	37.9%	58	36	49.3%	73
Group Median		20.3%			14.6%	
Group Mean		19.8%			14.1%	

Marshall High School Science

AFRICAN AMERICAN	Female					Males				
	1 st Year Chemistry		1 st Year Physics		9-12 Enroll	1 st Year Chemistry		1 st Year Physics		9-12 Enroll
	Number students		Number students			Number students		Number students		
Northview High	1	2.3%	7	16.3%	43	6	11.1%	6	11.1%	54
La Sierra High	18	15.0%	4	3.3%	120	17	13.0%	1	0.8%	131
Schurr High	1	7.7%	0	0.0%	13	0	0.0%	0	0.0%	7
Cathedral City High	8	18.6%	1	2.3%	43	5	12.2%	0	0.0%	41
California High	0	0.0%	2	13.3%	15	0	0.0%	0	0.0%	9
Rosemead High	0	0.0%	0	0.0%	8	1	16.7%	0	0.0%	6
Valley View High	21	8.5%	2	0.8%	247	11	4.8%	1	0.4%	231
Arlington High	11	12.9%	0	0.0%	85	8	9.3%	0	0.0%	86
Marshall High	40	29.4%	19	14.0%	136	25	22.9%	8	7.3%	109
Group Median		10.7%		2.1%			10.2%		0.6%	
Group Mean		10.5%		2.8%			8.5%		1.4%	

HISPANIC	Female					Males				
	1 st Year Chemistry		1 st Year Physics		9-12 Enroll	1 st Year Chemistry		1 st Year Physics		9-12 Enroll
	Number students		Number students			Number students		Number students		
Northview High	43	8.7%	64	12.9%	496	41	8.4%	61	12.5%	54
La Sierra High	75	14.5%	2	0.4%	516	72	14.0%	6	1.2%	131
Schurr High	82	6.3%	19	1.5%	1304	48	3.4%	17	1.2%	7
Cathedral City High	122	13.3%	10	1.1%	914	76	8.0%	20	2.1%	41
California High	149	13.5%	16	1.5%	1102	95	8.7%	23	2.1%	9
Rosemead High	34	6.0%	6	1.1%	564	28	5.2%	3	0.6%	6
Valley View High	36	7.0%	5	1.0%	516	28	5.3%	4	0.8%	231
Arlington High	75	14.5%	2	0.4%	519	72	14.0%	6	1.2%	86
Marshall High	11	19.0%	16	27.6%	58	16	21.9%	10	13.7%	109
Group Median		20.3%		1.1%			8.1%		1.2%	
Group Mean		19.8%		2.0%			7.2%		2.2%	

Burton High School Mathematics

AFRICAN AMERICAN	Females			Males		
	Combined Math		9-12 Enrollment	Combined Math		9-12 Enrollment
	Number of students			Number of students		
Valley Center	1	50%	2	0	0.0%	1
Downey High	71	11.5%	617	55	8.6%	636
Los Bano High	180	26.8%	671	170	24.6%	690
Elsinore High	35	34.3%	102	23	25.9%	89
Cajon High	128	23.3%	549	106	20.2%	525
Charter Oak High	141	29.4%	480	102	19.8%	515
Hilmar High	6	9.0%	67	8	10.4%	77
Selma High	6	85.7%	7	2	100%	2
Burton High	65	36.7%	177	29	20.6%	141
Group Median		25.1%			20.0%	
Group Mean		22.1%			18.7%	

HISPANIC	Females			Males		
	Combined Math		9-12 Enrollment	Combined Math		9-12 Enrollment
	Number of students			Number of students		
Valley Center	40	19.3%	207	40	17.1%	234
Downey High	5	9.1%	55	4	7.9%	51
Los Bano High	14	29.8%	47	14	32.6%	43
Elsinore High	35	56.4%	62	21	42.0%	50
Cajon High	55	20.8%	264	37	14.3%	258
Charter Oak High	12	22.3%	54	12	20.0%	60
Hilmar High	6	9.0%	67	8	10.4%	77
Selma High	6	85.7%	7	2	100%	2
Burton High	95	45.4%	209	74	33.4%	221
Group Median		20.8%			17.1%	
Group Mean		22.7%			17.8%	

Burton High School Science

AFRICAN AMERICAN	Females					Males				
	1 st Year Chemistry		1 st Year Physics		9-12 Enroll	1 st Year Chemistry		1 st Year Physics		9-12 Enroll
	Number students		Number students			Number students		Number students		
Valley Center	1	50.0%	0	0.0%	2	0	0.0%	0	0.0%	1
Downey High	31	5.0%	0	0.0%	617	33	5.2%	4	0.6%	636
Los Bano High	52	7.7%	3	0.4%	671	47	6.8%	7	1.0%	690
Elsinore High	21	2.6%	0	0.0%	102	17	19.1%	0	0.0%	89
Cajon High	50	9.1%	17	3.1%	549	33	6.3%	31	5.9%	525
Charter Oak High	31	6.5%	32	6.7%	480	22	4.3%	18	3.5%	515
Hilmar High	5	7.5%	0	0.0%	67	2	2.6%	1	1.3%	77
Selma High	0	0.0%	1	14.3%	7	1	50.0%	0	0.0%	2
Burton High	44	24.9%	3	1.7%	177	15	10.6%	1	0.7%	141
Group Median		7.6%		0.2%			5.8%		1.2%	
Group Mean		7.7%		2.1%			6.2%		2.4%	

HISPANIC	Females					Males				
	1 st Year Chemistry		1 st Year Physics		9-12 Enroll	1 st Year Chemistry		1 st Year Physics		9-12 Enroll
	Number students		Number students			Number students		Number students		
Valley Center	27	13.0%	3	1.4%	207	18	7.7%	3	1.3%	234
Downey High	8	14.5%	0	0.0%	55	5	9.8%	0	0.0%	51
Los Bano High	6	12.8%	1	2.1%	47	3	7.0%	1	2.3%	43
Elsinore High	2	3.2%	2	3.2%	62	2	4.0%	0	0.0%	50
Cajon High	20	7.6%	7	2.7%	264	17	6.6%	3	1.2%	258
Charter Oak High	1	1.9%	4	7.4%	54	0	0.0%	1	1.7%	60
Hilmar High	5	7.5%	0	0.0%	67	2	2.6%	1	1.3%	77
Selma High	0	0.0%	1	14.3%	7	1	50.0%	0	0.0%	2
Burton High	54	25.8%	13	6.2%	209	46	20.8%	8	3.6%	221
Group Median		7.6%		2.1%			6.6%		1.3%	
Group Mean		9.0%		2.4%			6.2%		1.2%	