Quantitative Findings on Security, Discipline, Schooling and Academic Outcomes in New York City High Schools

Research Memo

Prepared for the Urban Youth Collaborative

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Motivation

As part of the technical support for the Urban Youth Collaborative (UYC) campaign development efforts this year, we were asked to investigate school safety and discipline in New York City high schools. Our investigation focused on specific security practices that have been criticized as counterproductive and detrimental to school productivity and the overall goal of education. The most concrete and measurable of these practices is the use of metal detectors.[2] Thus, we analyzed school-level demographic, resource, discipline and outcome data for schools with and without metal detectors. Similarly, we analyze these data for schools that were and were not part of New York City's Impact initiative, to assess the effects of this set of school-based security policies. In addition, we looked at these data for the 25 high schools with the lowest poverty levels[3] and in the schools on which UYC organizing efforts have been focused.[4]

Sample, Methods, Metrics and Assumptions

We calculated weighted averages for each type of school described above and for all New York City schools. To assess the effect of restrictive and punitive safety policies, we conduct t-tests and analysis of variance and note significant differences in these averages.

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[1] Royalty-free image from fotosearch.com
[2] The presence of metal detectors was determined by the New York Civil Liberties Union and published in ____?___ in 2005-06.
[3] Referred to here as "wealthy schools".
[4] UYC schools are also the schools which UYC members attend; it is not possible at this point to disambiguate specific organizing efforts from representation/enrollment.

Effect sizes were also calculated on the weighted means. Thus, indications of "significance" in the comparisons below reflect strong differences between metal detector schools and schools without metal detectors, or between Impact schools and non-impact schools.[5] We did not conduct statistical tests on all possible comparisons (i.e., metal detector to Impact, UYC to Impact, low poverty to metal detector) because the goal was to assess the effects of the two main safety policies.

We also conducted a multivariate regression analysis, looking at the effects of these policies on academic performance, suspension rates, graduation, dropout and regents diploma rates Each of these were used as the dependent variable in separate regression analyses. The independent variables were metal detectors or Impact status. Student background, teacher variables and grade range flag are included as control variables.

Thus, in the regression analysis, the positive or negative coefficients for metal detector schools or Impact schools show the effect of these policies, net of student and school variables. That is, *are these schools higher or lower on the dependent variable than demographically similar schools with similar teaching characteristics?* Significance is also noted here, indicating whether the differences (higher or lower) from demographically similar schools are stronger than no difference at all. For simplicity and consistency, and to avoid issues of missing data and collinearity, our regression models are as parsimonious as possible and, except for the models where we test interaction effects, we include the same set of independent variables and controls.

Finally, we analyzed course offerings[6] in metal detector, wealthy, UYC schools. We worked through the large and disorganized list of course names by categorizing them into basic and advanced (regents) courses,[7] and arts courses (for those schools that were not exclusively arts focused), then counting the number of schools that offered courses in these categories.

The data for this study are from six sources:

- New York City Department of Education Annual School Reports,
- New York City Department of Education Learning Environment Survey,
- New York State School Report Cards,
- New York State Personnel Master File,
- United States Department of Education, Office of Civil Rights (OCR) Data Collection (formerly the Elementary and Secondary School Survey), and
- Advocates for Children (AFC), suspension data obtained through discovery.

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[5] Because we have made so many comparisons, we apply more stringent criteria to avoid false positives due to chance in noting significance. Thus, in the comparisons of means, a “significant” difference refers to a p-value of .001 or less.

[6] Determined by teacher assignment codes aggregated to the school level. No information is available about actual enrollment in these courses.

[7] This solution was suggested by a few members of the United Federation of Teachers.

Out of the 378 New York City high schools[8] in the combined database, we created four categories[9] for comparisons, in addition to the citywide average:

- 80 schools with metal detectors
- 18 Impact schools
- 31 UYC schools
- 25 wealthy schools

However, due to missing data and the consolidation of information about some of these schools into data elements for entire campuses, the number of actual schools contributing to each statistic varies.

Highlights of Findings

On average, student needs at Metal detector and Impact schools are higher. These schools serve a higher percentage of English language learners, poor students (eligible for free or reduced lunch) and recent immigrants. *These schools are also ethnically racially isolated*, enrolling higher percentages of African American and Latino students (43.5 and 42.4 percent, compared to 34.3 and 37.1 percent citywide). Metal detector schools serve significantly fewer White and Asian students (6.1 and 8.1 percent). Among the entering 9th and 10th grade students there are significantly more students in self-contained special education classes. In metal detector schools, significantly fewer entering 9th and 10th graders (13 to 27 percent) performed at or above grade level in middle school reading and math.

Course offerings in schools with metal detectors are not more advanced or more diverse than other schools, although in these other schools arts course offerings vary from school to school. 93 percent of metal detector schools offered advanced regents courses, compared to 83 percent of other schools. However, 100 percent of wealthy schools offered advanced regents courses. In a more detailed analysis of course offerings, UYC schools compared unfavorably to these wealthy schools in that *UYC schools offered a limited range of language courses, fewer AP courses, a smaller range of electives, and a disproportionately high volume of vocational and remedial courses*.

While resource differences between our schools are not notable,[10] academic performance, especially the percent passing the English regents, is lower in metal detector (51.9) and

[8] This N is larger than the number of schools in accountability reports such as the *Class of 2006 Four-Year Longitudinal Report* because we include all high schools, including those without a graduating class in 2006.

[9] These categories are not mutually exclusive, e.g., all but one impact school have metal detectors. The school types are compared separately, e.g., metal detector to no metal detector, as described above.

[10] The percent of teachers fully licensed, the percent with five or more years' experience, and the percent with masters degrees are slightly higher in metal detector and impact schools. These differences, however, are not statistically significant. Metal detector schools spend more, but not significantly more, on instruction and instructional support. Additionally, The number of students per guidance counselor is *lower* in UYC schools (256), compared to the 25 wealthiest schools (345). Metal detector schools also have a lower student-counselor ratio (272) than schools without metal detectors, but this ratio varies a lot

Impact schools (49.8). Related to this, college plans are less ambitious in metal detector schools: significantly fewer (32.4) students in these schools plan to attend four year college than in schools without metal detectors (49.3). And, perhaps consequently, slightly fewer students take the SAT. Graduation after four years is significantly less frequent (41.7 and 37.3 for metal detector and Impact schools); regents diploma rates are lower (25.4 and 23.0); dropouts are higher (16.9 and 17.3); and a higher percentage of students receive a GED (6.4 and 6.4). In fact, *while 2006 citywide graduation rate has been celebrated as an all time high, only a portion (38.2 percent) of the class of 2006 obtained a regents diploma. This gap is larger in metal detector and impact schools than in other schools*. As expected, proportionally more students in wealthy schools obtain a regents diploma.

Of all schools compared in this analysis, Impact schools have the highest suspension rate, followed by schools with metal detectors. T-test and effect size analyses indicate that there are significantly higher out-of-school suspensions in metal detector and Impact schools compared to the rest of high schools in NYC. Black students have the highest rates in every type of school, followed by Latino students. *The gap in suspension rates between White and Black, students, and also White and Latino students, is highest in metal detector schools, followed by UYC and Impact schools*, suggesting that Black and Latino students are more severely impacted in metal detector and Impact schools.

By our criteria, metal detector schools do not have a significantly higher rate of crime,[11] but they do have a significantly higher rate of noncriminal incidents. In fact, there are four times as many noncriminal incidents in metal detector schools than in nonmetal detector schools. The ratio of criminal to noncriminal incidents in metal detector schools is extremely high: *for every criminal incident involving police in these schools, there are 22.3 noncriminal incidents*. This ratio for non metal detector schools is 9. Citywide, the noncriminal-criminal ratio is 11.9. Similarly, Impact schools do not show a significantly different rate of criminal incidents, but they do show a high rate of noncriminal incidents. *The noncriminal-criminal ratio for Impact schools is 33.6*.

Based on the surveys administered to students, parents and teachers in fall 2006, metal detector schools are lower than schools without metal detectors and all NYC schools on most of the qualities considered important for a positive learning environment, including communication, engagement and academic expectations. *Metal detector schools are significantly lower than nonmetal detector and all NYC schools on parent, teacher and student perceptions of safety and respect.* Impact schools are also lower on all measures, and significantly lower in academic expectations. UYC schools are slightly lower than other schools on safety and respect, but they are mostly average on all other variables. Wealthy schools, however, are a mixed picture: they are higher than average on safety and respect and academic expectations, but lower in communication and engagement.

(ranging from 85 to 671 in metal detector schools and 27 to 1227 in their counterparts). 95% of counselors in UYC schools are certified, while 87% of counselors in wealthy schools are certified

[11] The rate of all types of crime is higher, and violent crimes per 100 students are twice as high as in nonmetal detector schools, but these differences are not statistically significant.

The regression analysis indicates that most of the effects described above hold up even when schools with metal detectors are compared to schools with similar student, school and teacher characteristics. This is not the case with Impact schools, which show no strong differences, positive or negative, from similar schools when student and school characteristics are considered.

There is no metal detector school effect on suspensions in the data from AFC, regardless of infraction type (seriously dangerous/violent, insubordination, or total). However metal detector schools are significantly higher than comparable schools on total suspensions and Latino suspensions in the data from OCR.

Academic outcomes for metal detector schools are also mixed. *Students in metal detector schools scored significantly lower on the 2006 English regents exam* (but not math). While there is no significant metal detector effect on the % taking SAT, 4yr college, or graduation rates, *a metal detector is associated with a higher dropout rate.*

Metal detector schools are significantly higher on the total police incident rate, but not violent crimes.[12] Metal detector schools are significantly higher on non-criminal incidents, even when we control for the rates of violent and property crime incidents.

In a test of how suspensions and police incidents may influence academic outcomes, we created several models with crime and suspensions as covariates, and interaction terms for measuring the effects of suspensions in metal detector schools. In these analyses, we found that suspensions and noncriminal incidents have a negative effect on college plans and graduation, but there is no additional effect of suspensions in metal detector schools.

Discussion

Several of our findings confirm expectations and correspond to findings in prior research on restrictive and punitive safety and discipline policies, including prior findings on the disconnect between the selection of schools for implementation of safety policies and the other important needs of the school (Drum Major Institute, 2002; Brady, et al., 2007). Thus, the fact that Impact schools and metal detector schools are among the neediest schools in NYC supplies further evidence that alternative interventions are needed in these schools, including positive alternatives such as conflict mediation training. Academic interventions are clearly still needed in metal detector and Impact schools.

The high ratio of criminal to noncriminal incidents in these schools suggest that, in these schools, students and police interact as much as 34 times more than it may be necessary, and that this higher noncriminal incident rate is present even after actual crime rates are taken into account. Additionally, the relatively low ratings of safety and respect in metal detector schools, and of academic expectations in Impact schools, suggest that these

[12] Note the R^2 for violent crime incidents is .16, meaning only a small proportion (16%) of the variation in violent crime rates can be explained with the model we have included here.

environmental factors are making some contribution to the low graduation rates, high dropout rates, and low ambition on the part of those who do graduate. The regression analysis above begins to describe this connection.

Detailed tables and figures attached.

	Schools with Metal Detectors (N=80)		Schools without Metal Detectors (N=279)		Impact Schools (N=18)		Non-Impact Schools (N=341)		UYC Schools (N=26)		Top 25 Wealthiest Schools (N=25)		New York City Schools (N=378)	
	mean	std. dev.	**mean**	std. dev.	**mean**	std. dev.	**mean**	std. dev.	**mean**	std. dev.	**mean**	std. dev.	**mean**	std. dev.
Student Characteristics														
% English language learners	14.45	9.42	9.94	13.14	15.84	10.00	10.68	12.51	14.43	8.59	4.84	3.89	11.21	12.38
% Students eligible for free or reduced lunch	68.90	27.18	60.64	25.97	64.21	27.52	62.82	26.46	73.35	18.41	22.85	5.39	62.96	26.57
% White students	6.13	10.81	**16.81** ***	18.00	6.04	7.91	**14.69**	17.52	5.50	5.25	33.56	24.52	13.81	17.00
% African-American students	**43.47**	23.05	30.76	24.11	**49.39**	24.27	32.63	23.93	26.79	12.15	27.93	27.78	34.34	24.49
% Latino students	42.36	23.62	35.06	21.48	36.82	23.09	37.14	22.26	51.40	17.12	15.74	10.47	37.11	22.35
% Asian students	8.05	8.56	**17.37** ***	17.01	7.75	7.77	**15.54**	16.16	16.35	12.93	22.76	18.14	14.75	15.69
% Students in full-time special education	**6.44** ***	3.05	4.59	3.35	**7.56**	2.95	4.85	3.30	5.11	2.14	3.80	3.08	5.14	3.37
% Students recently immigrated (arrival to US < 3 years)	9.33	5.50	6.27	10.31	**11.42**	4.71	6.65	9.58	8.44	5.41	5.31	4.31	7.13	9.32
% Resource room, entering 9th & 10th graders	5.93	2.99	5.68	3.89	5.72	2.88	5.75	3.74	4.54	2.58	4.82	2.77	5.75	3.66
% Over-age, entering 9th & 10th graders	**41.46**	15.09	27.32	16.73	**49.34**	17.66	29.36	16.24	32.05	13.98	19.49	13.00	31.43	17.49
% English language learners, entering 9th & 10th graders	**17.90**	16.25	11.36	15.57	**22.72**	22.77	12.17	14.69	18.44	13.11	6.11	5.33	13.26	16.05
% eligible free-lunch, entering 9th & 10th graders	47.81	23.06	46.63	26.01	46.34	17.49	47.05	25.94	49.52	27.23	21.95	9.84	46.98	25.19
% special education, entering 9th & 10th graders	**7.74** ***	4.67	4.43	4.03	**9.52** ***	5.45	4.91	4.10	5.57	2.95	3.78	3.59	5.39	4.49
Average daily attendance, entering 9th & 10th graders	87.52	3.27	89.39	10.74	86.93	4.46	89.07	9.63	88.25	2.86	91.93	2.81	88.84	9.26
% Reading at or above grade level, entering 9th & 10th graders	18.20	10.98	**36.72** ***	25.20	13.18	8.23	33.43	23.88	27.79	17.68	53.64	26.27	31.33	23.58
% Math at or above grade level, entering 9th & 10th graders	26.13	13.33	**45.81** ***	25.37	19.92	11.74	**42.42**	24.24	36.38	18.50	61.44	24.73	40.08	24.25
Academic Performance and College Aspirations														
% Students passing Regents, English	51.91	14.09	**69.47** ***	18.55	49.77	11.47	**66.05**	19.10	60.68	17.50	76.99	19.62	64.28	19.11
% Students passing Regents, Math A	52.37	13.02	**69.89**	19.45	52.21	10.69	**66.21**	19.78	55.33	14.49	77.56	19.09	64.72	19.51
% Students taking SAT	33.84	10.93	37.49	11.73	36.48	11.20	36.40	11.67	30.85	8.94	41.31	7.13	36.40	11.62
% Class of 2006 who graduated after 4 years	41.65	11.93	**59.67** ***	19.50	37.34	8.79	**56.47** ***	19.34	48.44	20.15	68.11	21.77	54.31	19.42
% Class of 2006 who dropped out	**16.92** ***	7.12	9.94	7.26	**17.30** ***	7.98	11.34	7.63	15.92	8.09	7.68	6.49	12.02	7.89
% Class of 2006 still enrolled	**32.58**	8.22	23.94	13.57	**36.04**	6.87	25.30	12.92	28.64	14.62	19.32	14.57	26.51	12.84
% Class of 2006 earning Regents Diploma, including Honors	25.36	13.85	**43.42** ***	27.00	23.01	10.25	**40.01**	25.96	33.20	20.31	58.94	27.12	38.19	25.31
% Receiving GED	**6.42** ***	2.65	4.70	3.53	6.38	1.74	5.07	3.51	4.75	4.03	3.52	2.28	5.21	3.39
% Students planning 4-year college	32.41	25.45	**49.28** ***	27.48	33.03	23.33	45.69	28.20	49.93	14.33	45.78	33.79	44.25	27.98
% Students planning 2-year college	16.55	15.21	15.72	13.31	19.47	18.38	15.52	13.16	23.49	6.44	10.01	9.63	15.97	13.91
% Students planning employment	2.79	4.45	3.29	5.10	2.51	2.27	3.22	5.16	7.21	7.74	1.75	2.88	3.14	4.92
% Students planning military service	1.28	2.97	0.79	1.41	0.58	0.59	0.98	2.13	0.91	1.00	0.43	0.59	0.94	2.02
Teacher Characteristics														
% Teachers fully licensed and permanently assigned	94.26	22.21	94.66	21.52	98.06	11.30	94.15	22.56	92.06	25.95	98.22	10.27	94.55	21.71
% Teachers more than 2 years in their school	64.16	21.38	60.93	21.88	**71.11**	14.63	60.77	22.22	62.29	24.12	72.64	10.65	61.83	21.79
% Teachers with 5 or more years teaching experience	53.97	19.00	51.99	17.59	57.78	14.71	51.94	18.25	48.38	19.43	63.07	10.80	52.54	18.01
Average total years teaching	11.72	3.42	11.64	3.75	13.04	3.16	11.50	3.69	11.01	3.18	14.53	2.48	11.66	3.66
% Teachers with Masters or higher degree	79.66	19.78	78.44	19.25	83.21	11.23	78.27	20.06	75.30	22.40	86.24	9.55	78.78	19.41
Resources/Environment														
Average spending per student (Direct Services Only)	9,968.16	1,656.45	10,065.93	2,140.25	9,609.60	1,242.48	10,088.93	2,082.62	9,664.75	1,491.22	9,032.43	1,474.89	10,038.33	2,015.96
% Money spent on classroom instruction	58.23	4.29	57.17	4.97	57.15	2.60	57.51	5.01	60.04	6.29	58.20	4.76	57.47	4.81
% Money spent on instructional support	13.68	1.95	12.68	2.84	**14.45**	1.97	12.78	2.67	12.42	2.01	12.15	3.00	12.96	2.65
% Money spent on supervisory support	13.72	2.56	13.44	3.04	13.37	1.59	13.53	3.03	14.56	4.40	13.29	2.63	13.52	2.91
% Money spent on other support services	6.14	0.98	**6.97**	1.58	6.44	0.97	6.77	1.53	6.26	1.06	6.86	1.42	6.73	1.48
% Money spent on building services	7.51	2.02	9.01	4.58	7.88	1.44	8.67	4.28	6.00	2.44	8.73	5.34	8.59	4.09
% Building capacity utilized	111.74	28.56	108.36	31.89	112.05	22.32	109.00	31.84	126.89	30.67	124.14	32.62	109.31	31.03

***Indicates that the differences are statistically significant, $p \leq 0.001$ (Corrected Alpha).
Bold indicates a Medium or Large effect size (i.e., a Cohen's D of 0.5 or higher). In these cases, the higher value is bolded.

NYC DOE Learning Environment Survey, 2007														
Safety and Respect Score	5.88	0.47	**6.49** ***	0.73	5.83	0.43	**6.37**	0.73	6.10	0.63	6.43	0.81	6.32	0.72
Communication Score	5.43	0.41	**5.69**	0.55	5.33	0.29	**5.65**	0.54	5.63	0.45	5.47	0.50	5.62	0.53
Engagement Score	5.48	0.44	5.69	0.56	5.44	0.43	5.65	0.54	5.65	0.44	5.58	0.49	5.63	0.54
Academic Expectations Score	6.48	0.40	**6.76**	0.58	6.43	0.33	**6.71** ***	0.56	6.66	0.43	6.71	0.52	6.68	0.55
Crime														
Violent incidents per 100 students	0.41	0.49	0.19	0.62	0.11	0.05	0.23	0.62	0.18	0.61	0.06	0.09	0.23	0.61
Property crime incidents per 100 students	0.27	0.53	0.25	0.62	0.04	0.03	0.26	0.62	0.35	0.61	0.12	0.18	0.25	0.61
Other crime incidents per 100 students	2.92	4.43	1.68	3.05	0.85	0.27	1.91	3.37	2.47	3.32	0.60	0.59	1.87	3.32
Non-criminal police incidents per 100 students	**12.41** ***	19.86	3.15	8.62	4.89	3.30	4.58	11.76	6.80	11.58	0.97	1.31	4.59	11.58
Ratio of noncriminal incidents to criminal	**22.29** ***	17.23	8.96	12.23	**33.57** ***	22.69	10.78	13.18	12.35	14.50	10.76	16.15	11.85	14.50
Student Suspensions														
Insubordinate - rate per 100 students (AFC)	0.29	0.56	0.27	0.79	0.38	0.57	0.26	0.74	0.29	0.73	0.09	0.20	0.28	0.72
Disorderly disruptive - rate per 100 students (AFC)	0.53	0.96	0.47	0.93	0.74	1.19	0.45	0.89	0.44	0.63	0.29	0.44	0.49	0.94
Seriously disruptive - rate per 100 students (AFC)	4.24	3.48	3.29	3.54	4.49	2.20	3.46	3.69	2.61	3.01	2.90	3.22	3.60	3.55
Dangerous or violent - rate per 100 students (AFC)	1.49	0.95	1.10	1.08	**1.82**	0.68	1.14	1.07	0.77	0.66	1.02	1.06	1.23	1.05
Seriously dangerous or violent - rate per 100 students (AFC)	**0.90** ***	0.55	0.49	0.53	**1.01**	0.49	0.56	0.56	0.62	0.48	0.46	0.58	0.62	0.57
Total suspension incidents - rate per 100 students (AFC)	7.44	4.86	5.63	5.60	8.44	3.40	5.88	5.61	4.72	4.35	4.76	4.80	6.21	5.44
Out-of-school suspensions - per 100 students (OCR)	**2.12** ***	1.34	1.07	1.16	**2.24**	1.47	1.27	1.26	1.29	0.82	0.71	0.73	1.36	1.31
Out-of-school suspensions - per 100 African American students (OC	2.87	2.00	1.99	2.01	2.83	2.04	2.22	2.04	2.12	1.79	1.75	1.06	2.30	2.05
Out-of-school suspensions - per 100 Latino students (OCR)	**1.70**	1.28	0.95	1.11	**1.84**	1.36	1.12	1.19	1.10	0.75	0.61	0.91	1.18	1.22
Out-of-school suspensions - per 100 White students (OCR)	0.71	1.74	0.38	0.92	0.90	1.96	0.40	1.00	0.36	0.95	0.14	0.28	0.42	1.06

***Indicates that the differences are statistically significant, $p \leq 0.001$ (Corrected Alpha).
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