

Atlanta Public Schools Case

Ann Liu

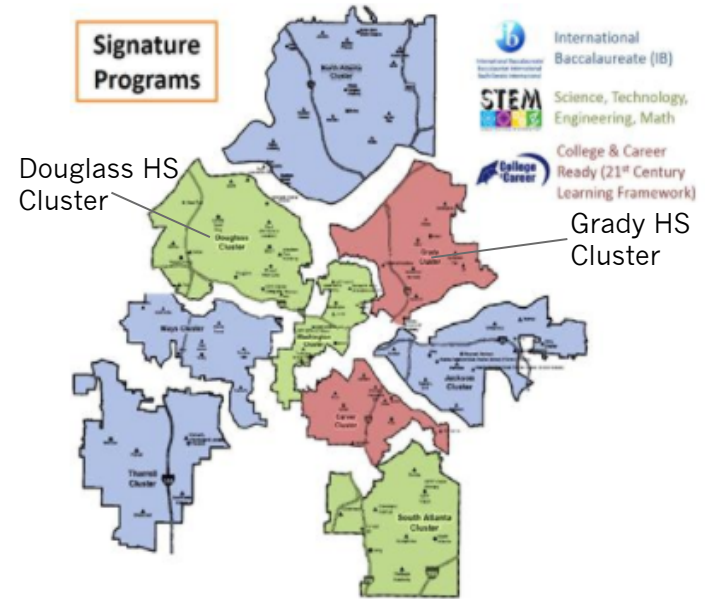
Executive Summary

If a “**quick-fix**” solution is preferred, we recommend the following:

- Implement “College & Career ready” programs to those found in the Grady HS cluster on low-performing STEM Douglass HS cluster
- Increase Forrest Hills Academy graduation rate to any level over 0%

If a **long-term** solution is sought after, we recommend shifting away from a charter-system model towards a more **standardized model** with an emphasis on **holistic learning** and **college preparation**.

Additionally, we recommend gathering more data about funding for individual schools to see how **budget allocation** plays a role in student outcomes.



Avg. Non-Charter Value-Add Score	Avg. Charter Value-Add Score
9	8.1

Assumptions

- Peer District graduation rates are representative of a larger sample of graduation rates across the U.S.
- APS 2014 graduation rates are representative of historical graduation rates.
- Student outcomes are determined by graduation rate, value-add scores, and standardized testing scores taken in elementary and middle schools.
- Current economic and gender distributions for schools are identical to past distributions.

Data Walkthrough

APS is one of the largest school districts in the state of Georgia, serving approximately 50,000 students:

- Avg 12.5 student to teacher ratio
- Avg 500 students per school

2 single-gender (female) academies, BEST and Coretta Scott King Young Women's Leadership Academy (94% grad rate) that aim to “foster success in school and life.”

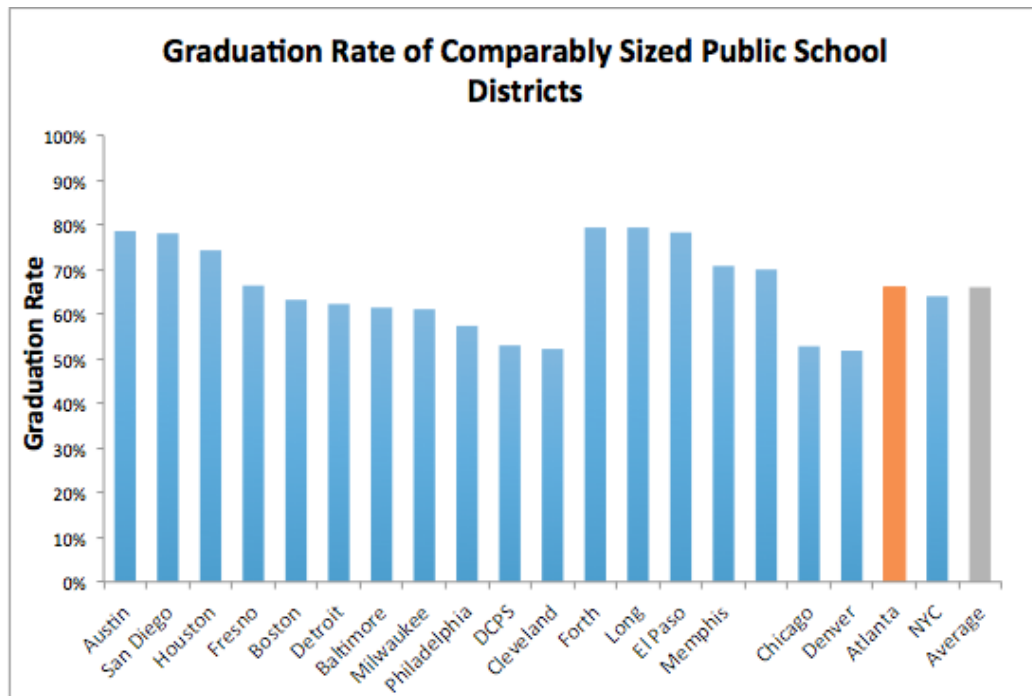
APS-Forrest Hills Academy (0% grad rate) and Crim High School (6% grad rate) are “problem” schools.

Placement for students with violations, delinquents:

- 72% male and 28% female, 100% minority, 100% economically disadvantaged. (Forest Hills)
- 46% male and 54% female, 100% minority, 79% economically disadvantaged. (Crim)
- “The students left behind”, “Most of Crim's population is made up of students who are sent to the school due to chronic absenteeism, severe behavior problems, and/or repeated academic failure.”

Atlanta Public Schools have similar performance to public schools on average across U.S. cities

- APS overall graduation rate in 2014 was 62.3%
- 67.5% when not accounting for outlier problem schools
- Forest Hills Academy and Crim High School
- Graduation rates range from 52-79%



Atlanta Public Schools are lacking in student performance compared to other public school systems in Georgia

Graduation rate in APS was 71.5% in 2016 (up from 2014, still 8% lower than average)

- 79.2% for all of Georgia

SAT scores were also lower than the Georgia average of 1459

- Only two Atlanta Schools had higher than average SAT scores:
 - Grady High School with 1595
 - North Atlanta High School with 1476

Look to high performance at Northview High School in Fulton County, Georgia

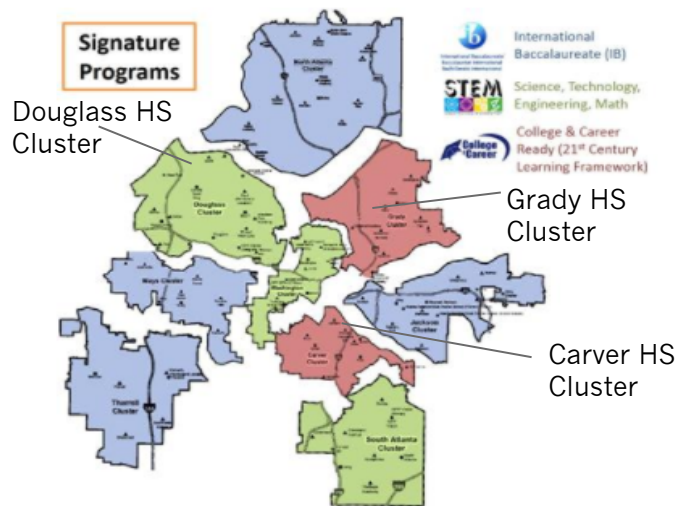
- 98% Graduation Rate
- Non-charter, non-magnet
- 1784 Average SAT
- 100% College attendance rate
- 90% of the Atlanta Metropolitan City is contained within Fulton County

Focus on high school improvement as student outcomes become more unstable and variable in high school years

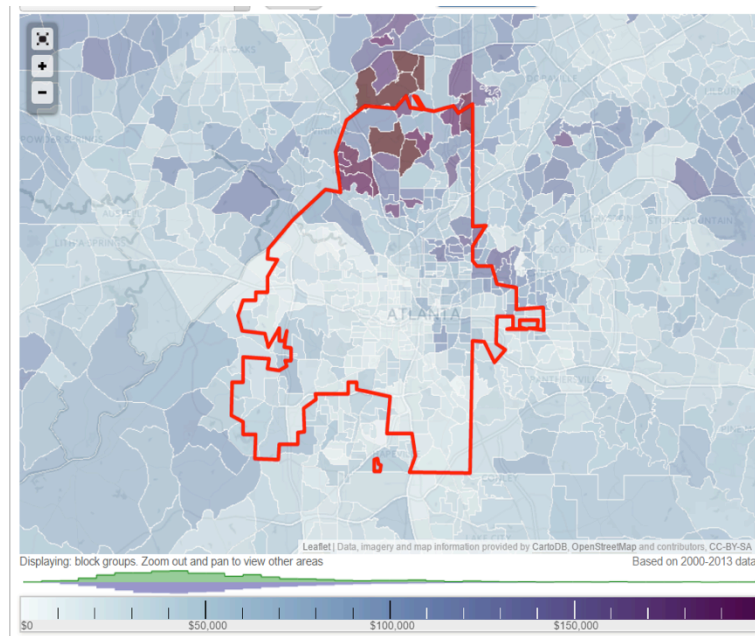
- Maynard H. Jackson HS contains outlier in value-add score compared to elementary and middle school outcomes funneling into the cluster.
- Grady HS cluster is the most consistently high-performing from primary to secondary education.
- Douglass HS has alarmingly low graduation rate.

	Grad Rate	Value-Add		
		High	Middle	Elementary
Carver	61.03	10.9	7.25	8.51640147
Douglass High School	42.5	7.24515168	7.71683058	8.603735037
Grady High School	82.4	10.6385221	11.3025171	10.27270082
Maynard H. Jackson, Jr.	68.5	6.05616736	10.3902422	8.072289953
Mays High School	62.5	8.35530856	7.59454874	9.243947564
North Atlanta High School	73.5	7.33008583	9.92436319	8.404877589
South Atlanta	69.27	9.29685177	8.94262528	9.851896302
Therrell	61.07	9.23164537	9.62595577	8.680694239
Washington	69.17	8.00360396	8.75333024	9.28944911

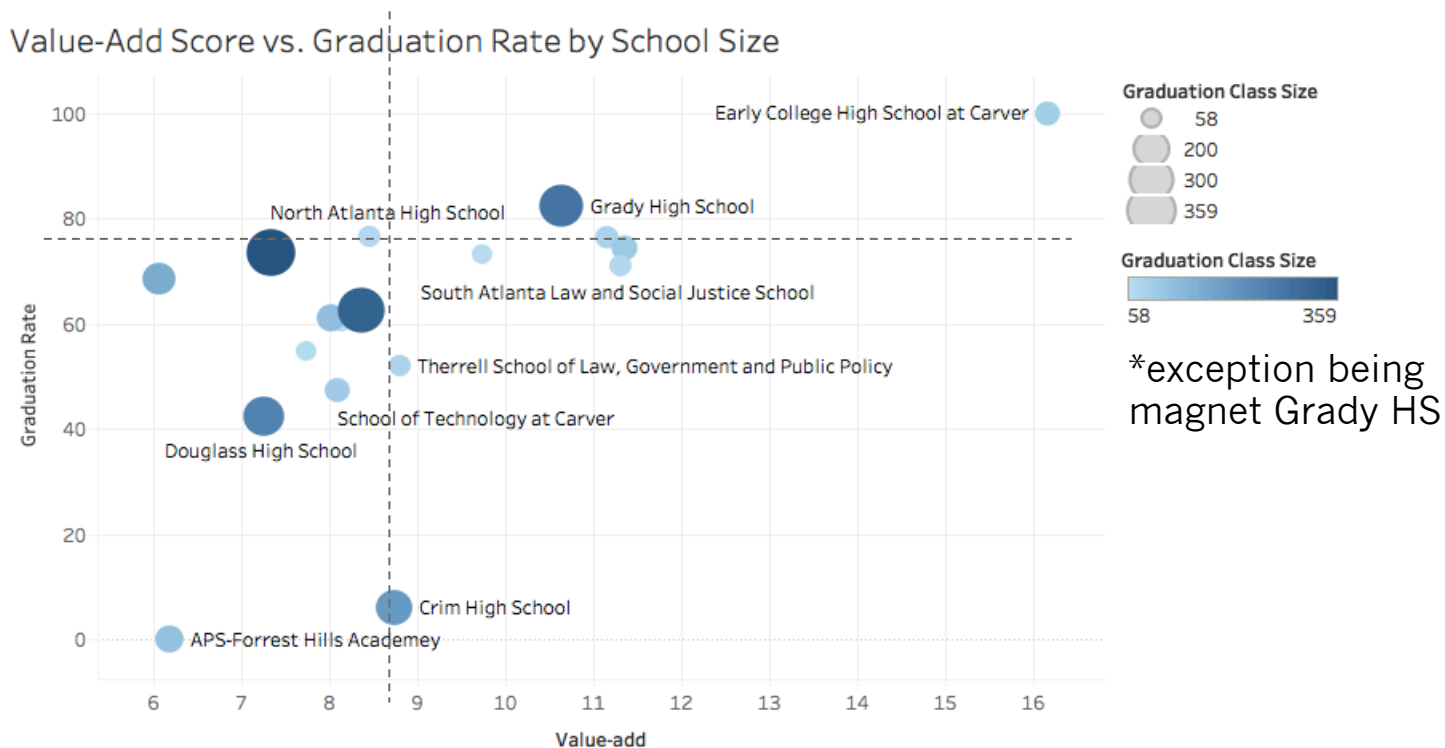
Implement college preparation programs in high school clusters with traditionally lower student achievement



Douglass HS graduation rate	Grady HS graduation rate	Early College HS at Carver
42.5%	82.4%	100%



Bigger class sizes in non-magnet high schools generally yield worse student outcomes



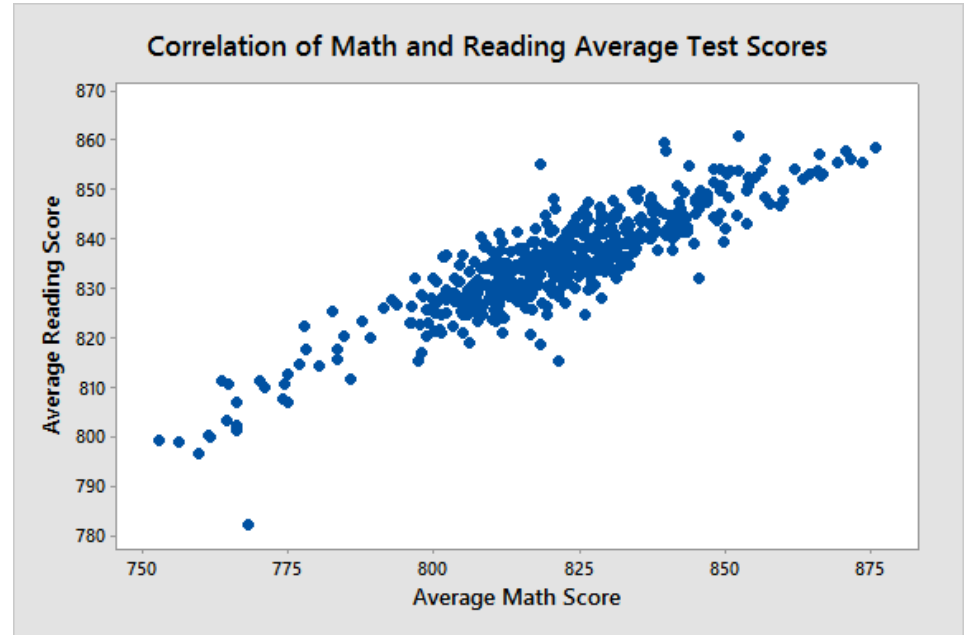
Value-add vs. Graduation Rate. Color shows sum of Graduation Class Size. Size shows sum of Graduation Class Size. The marks are labeled by School Name.

Increase cross-subject and interdisciplinary learning strategies during elementary and middle school years

High positive correlation between performance in test scores across reading, ELA, math, and science subjects in a standardized test

Schools bad in one subject area, are highly likely to be bad across other subjects

School improvement should not be subject-focused, they should take a holistic approach



Scatter Plot of Math and Reading Scores, Similar Trends for Other Subjects

Other Considerations

Need more information on:

- Funding and budget allocation to both schools within APS and APS compared to other counties in Georgia.
- Teaching quality and hiring: quality of hiring, quality of teaching, school-specific teacher to student ratio would be better in developing a more robust recommendation.
- Socio-economic conditions of students enrolled in each school
 - How socio-economic background may affect how receptive they are to different types of programs
- External factors like how widespread illicit drug usage is amongst students in different areas of Atlanta

Final Recommendation

For a **long-term solution** to student outcomes, we recommend shifting away from the current “experimental” model, which has led to a few top performers and problem schools, and work towards a **more standardized model** with an emphasis on **holistic learning** and **college preparation**.

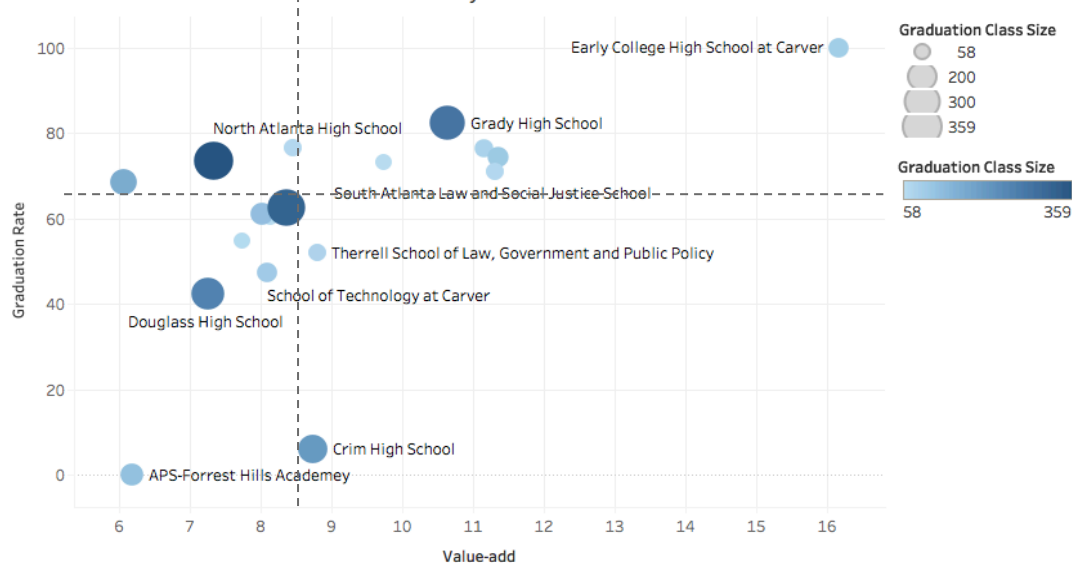
Elementary to Middle school:

- Focus on cross-subject project based learning

High school:

- Increase pre-professional, college preparation
- Need vast improvement in STEM program effectiveness

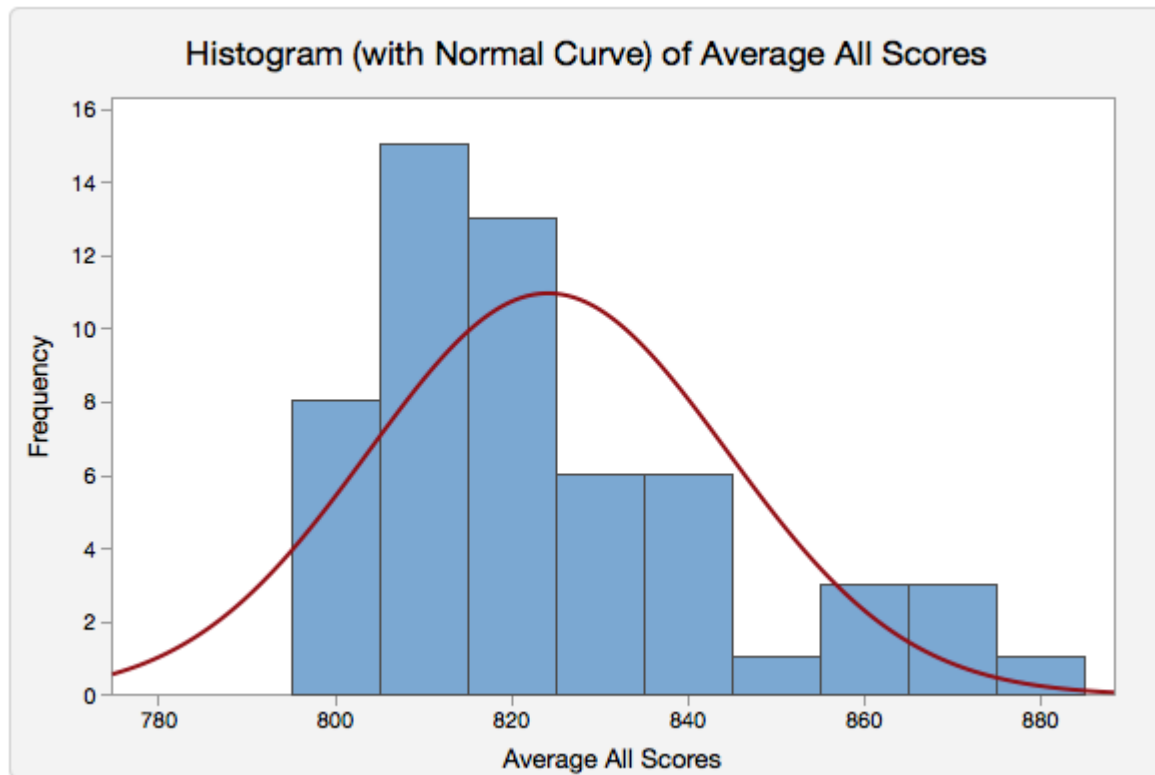
Value-Add Score vs. Graduation Rate by School Size



Value-add vs. Graduation Rate. Color shows sum of Graduation Class Size. Size shows sum of Graduation Class Size. The marks are labeled by School Name.

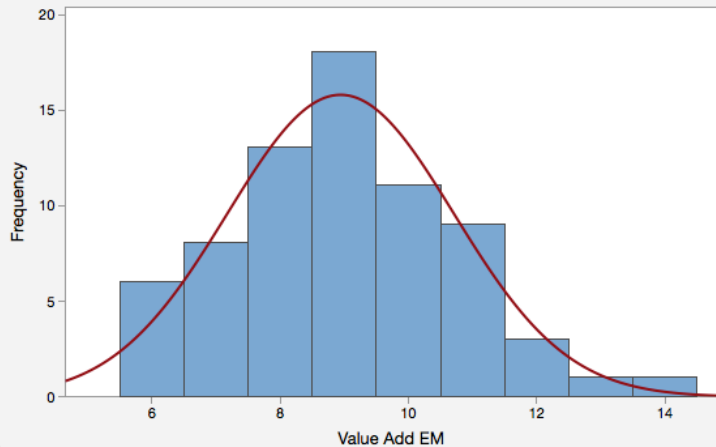
Appendix

REPORTING LEVEL	SYSTEM	SCHOOL ID	SYSTEM NAME	SCHOOL NAME	REPORTING LABEL	GRADUATION CLASS SIZE	TOTAL GRADUATES	GRADUATION RATE	Rank	Value
School	761	106	Atlanta Public Schools	Early College High School at Carver	ALL Students	90	90	100.0	1	16.2
School	761	4560	Atlanta Public Schools	Grady High School	ALL Students	289	238	82.4	2	10.6
School	761	108	Atlanta Public Schools	South Atlanta School of Health and Medical Science	ALL Students	68	52	76.5	5	8.5
School	761	608	Atlanta Public Schools	Therrell School of Engineering, Math, and Science	ALL Students	81	62	76.5	5	11.2
School	761	506	Atlanta Public Schools	The School of the Arts at Carver	ALL Students	102	76	74.5	7	11.3
School	761	192	Atlanta Public Schools	North Atlanta High School	ALL Students	359	264	73.5	8	7.3
School	761	118	Atlanta Public Schools	The Best Academy High School at Benjamin S. Carson	ALL Students	60	44	73.3	9	9.7
School	761	208	Atlanta Public Schools	South Atlanta Law and Social Justice School	ALL Students	69	49	71.0	10	11.3
School	761	186	Atlanta Public Schools	Maynard H. Jackson, Jr. High School	ALL Students	165	113	68.5	11	6.1
School	761	182	Atlanta Public Schools	Mays High School	ALL Students	331	207	62.5	13	8.4
School	761	406	Atlanta Public Schools	School of Health Sciences and Research at Carver	ALL Students	121	74	61.2	14	8.0
School	761	408	Atlanta Public Schools	South Atlanta School of Computer Animation and Design	ALL Students	58	35	60.3	15	8.1
School	761	708	Atlanta Public Schools	Therrell School of Health and Science	ALL Students	64	35	54.7	17	7.7
School	761	508	Atlanta Public Schools	Therrell School of Law, Government and Public Policy	ALL Students	75	39	52.0	18	8.8
School	761	306	Atlanta Public Schools	School of Technology at Carver	ALL Students	95	45	47.4	19	8.1
School	761	4058	Atlanta Public Schools	Douglass High School	ALL Students	252	107	42.5	20	7.2
School	761	2664	Atlanta Public Schools	Crim High School	ALL Students	201	12	6.0	21	8.7
School	761	403	Atlanta Public Schools	APS-Forrest Hills Academy	ALL Students	117	0	0.0	22	6.2
Atlanta Public Schools Average						133	80.68181818	62.27	#N/A	



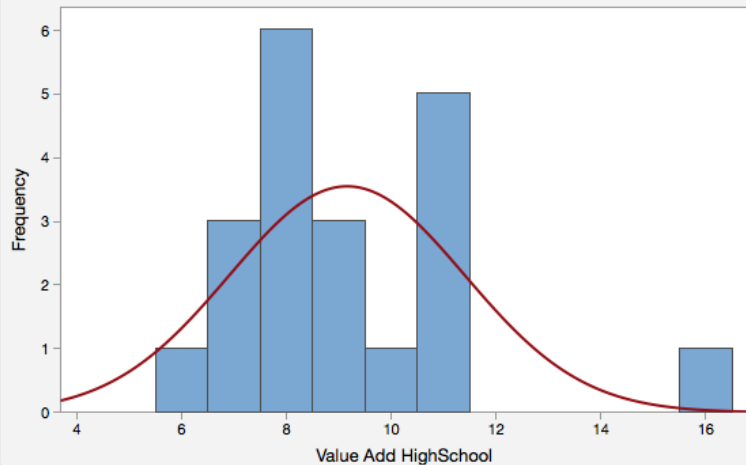
- Top 10% of schools have average score above 840
- Median 818

Histogram (with Normal Curve) of Value Add EM

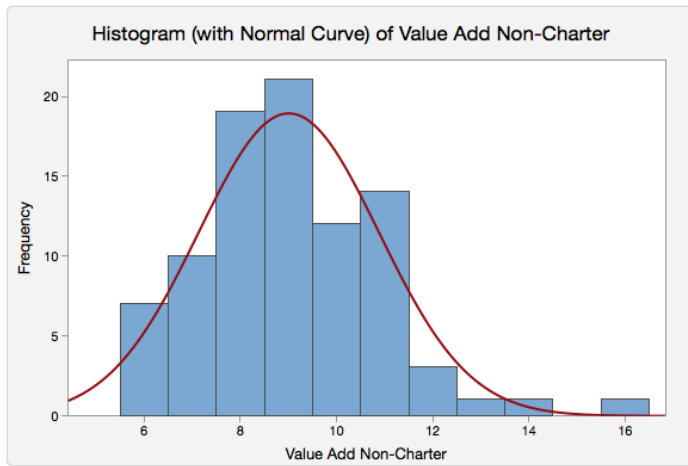


- Value Add Histogram of elementary and middle schools

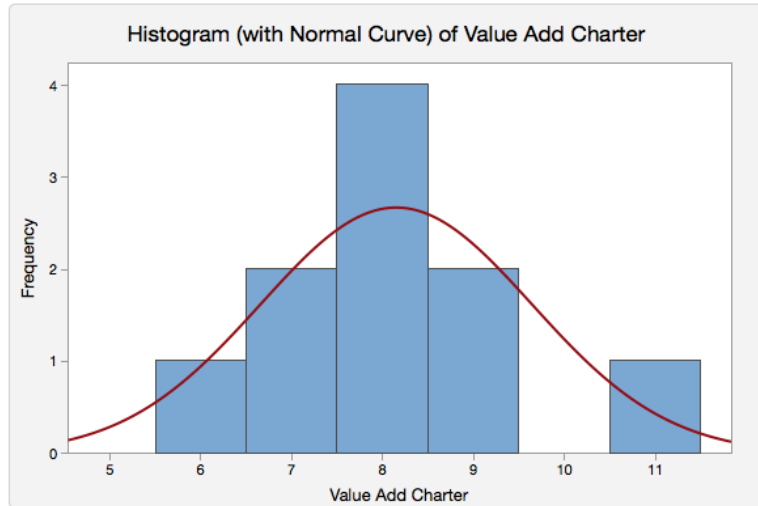
Histogram (with Normal Curve) of Value Add HighSchool



- Value Add Histogram of High Schools only



- Value Add Histogram of non charter schools
- Mean = 9



- Value Add Histogram of Charter schools
- Mean = 8.1

HIGH SCHOOL CLUSTERS

HIGH SCHOOLS	MIDDLE SCHOOLS	ELEMENTARY SCHOOLS
<u>CARVER</u>	<u>PRICE</u>	<u>SLATER</u> <u>THOMASVILLE HEIGHTS</u>
	<u>SYLVAN</u>	<u>FINCH</u> <u>GIDEONS</u> <u>PERKERSON</u>
<u>DOUGLASS</u>	<u>HARPER ARCHER</u>	<u>BOYD*</u> <u>FAIN</u> <u>F.L. STANTON*</u> <u>GROVE PARK-WOODSON*</u> <u>SCOTT*</u> <u>TOWNS</u> <u>USHER</u>
<u>GRADY</u>	<u>INMAN</u>	<u>CENTENNIAL PLACE</u> <u>HOPE-HILL</u> <u>MARY LIN</u> <u>MORNINGSIDE</u> <u>SPRINGDALE PARK</u>
<u>MAYNARD JACKSON</u>	<u>M.L. KING</u>	<u>BURGESS-PETERSON</u> <u>TOOMER</u> <u>WHITEFOORD</u> <u>BENTEEN</u> <u>D.H. STANTON</u> <u>DUNBAR</u> <u>PARKSIDE</u>

<u>MAYS</u>	<u>YOUNG</u>	<u>ADAMSVILLE-MILES</u> <u>BEECHER HILLS</u> <u>CASCADE</u> <u>PEYTON FOREST</u> <u>WEST MANOR</u>
<u>NORTH ATLANTA</u>	<u>SUTTON</u>	<u>BOLTON ACADEMY</u> <u>BRANDON</u> <u>GARDEN HILLS</u> <u>JACKSON</u> <u>RIVERS</u> <u>SMITH</u>
<u>SOUTH ATLANTA</u>	<u>LONG</u>	<u>CLEVELAND AVENUE</u> <u>DOBBS</u> <u>HERITAGE ACADEMY</u> <u>HUMPHRIES</u> <u>HUTCHINSON</u>
<u>THERRELL</u>	<u>BUNCHE</u>	<u>CONTINENTAL COLONY</u> <u>DEERWOOD ACADEMY</u> <u>FICKETT</u> <u>KIMBERLY</u>
<u>WASHINGTON</u>	<u>BROWN</u>	<u>HOLLIS INNOV. ACADEMY</u> <u>JONES</u> <u>TUSKEGEE AIRMEN</u>

* Priority area for single gender academies - BEST Academy and Coretta Scott King Young Womens' Leadership Academy.

Elementary, Middle, and High School Have Similar Value Added

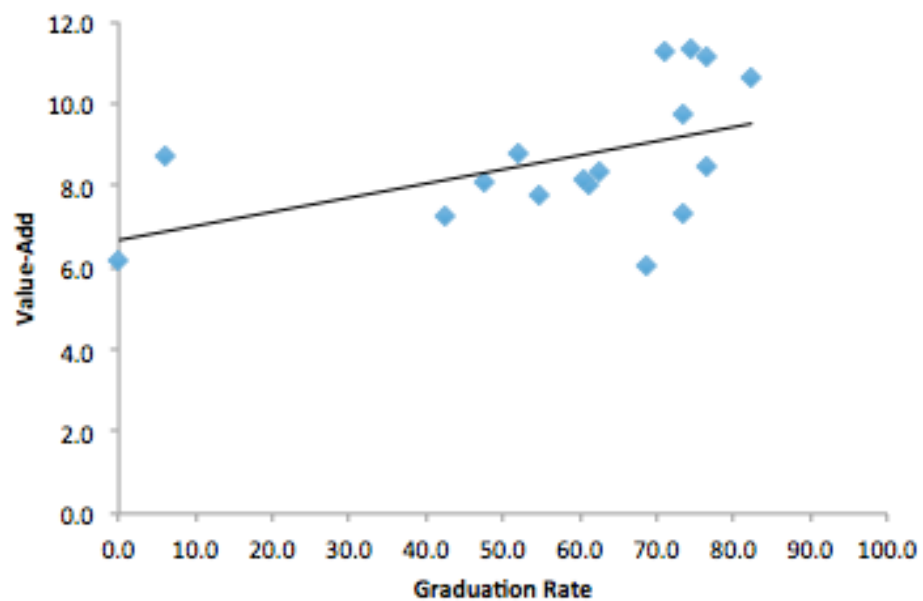
Value added is not normal

Value added is similar between for elementary, middle, and high school

Similar mean and variances

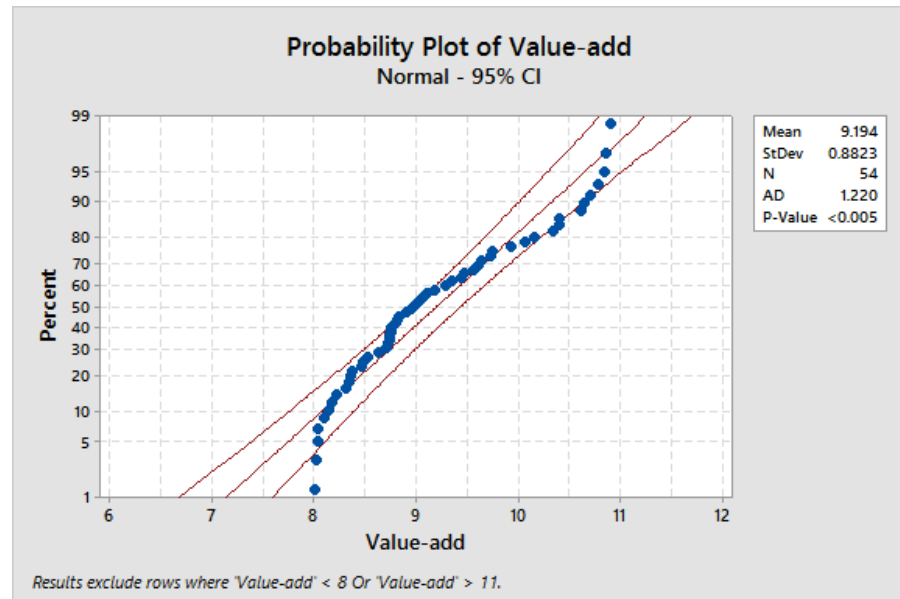
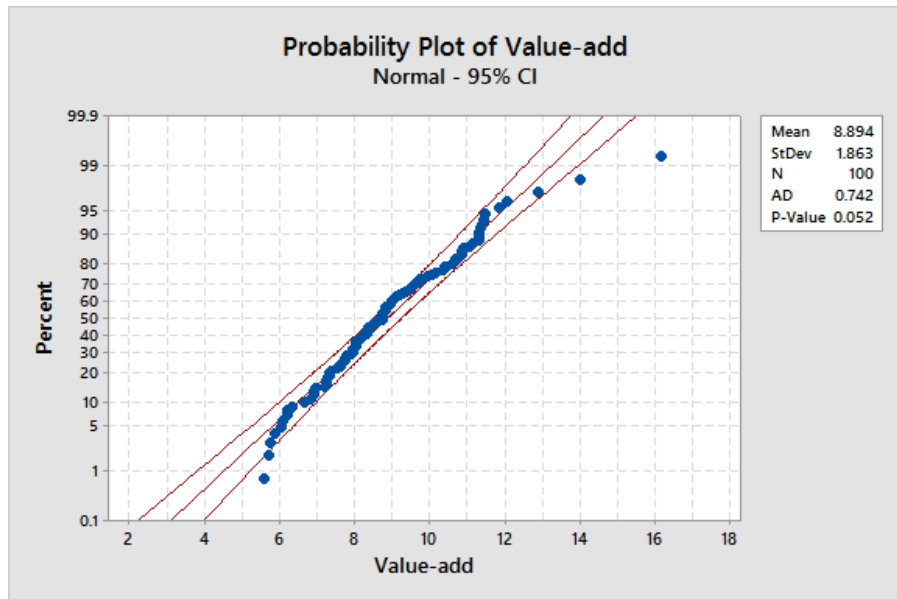
Median of roughly 9 month value added

Graduation Rate vs. Value-Add Score

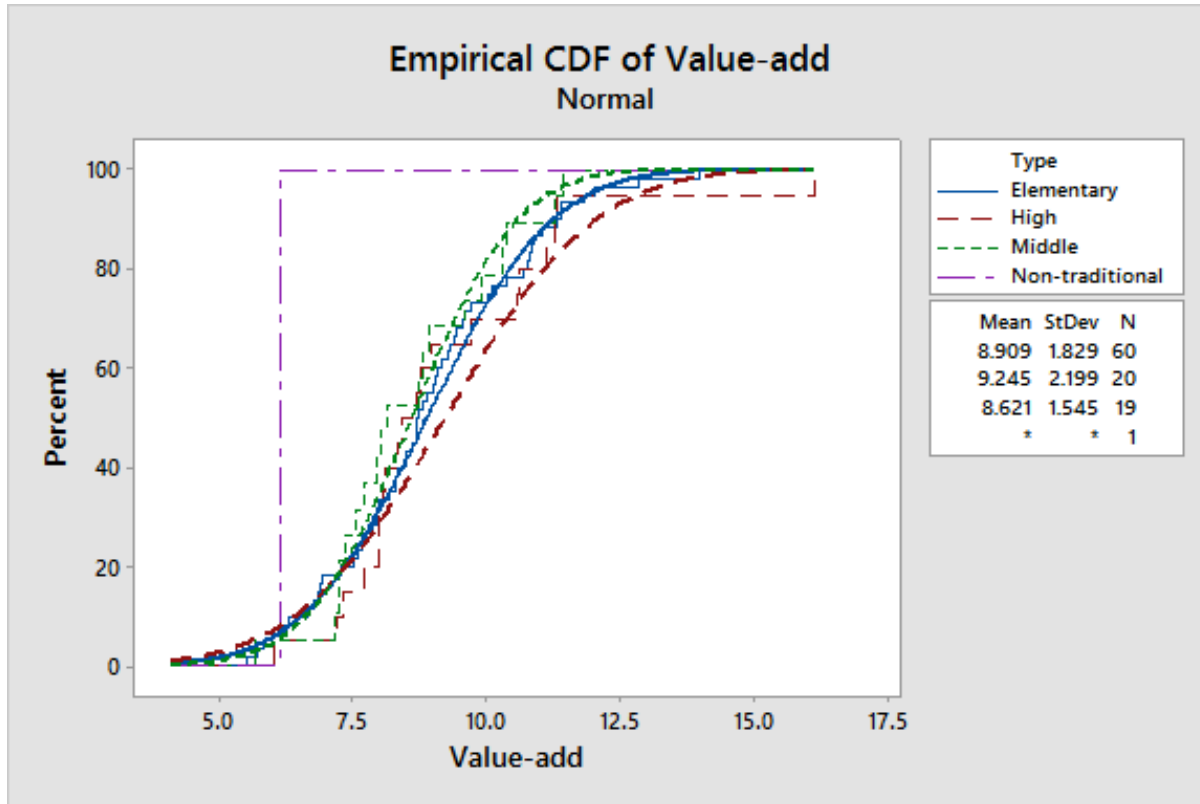


Value-Added is Not Normal After Removing Outliers

Removed non-numeric values
Removed outliers in one plot



Empirical CDF By School Type



Kruskal-Wallis: School Type and Value Added

99 cases were used
10 cases contained missing values

Kruskal-Wallis Test on Value-add

Type	N	Median	Ave Rank	Z
Elementary	60	8.738	50.6	0.24
High	20	8.593	52.5	0.44
Middle	19	8.174	45.6	-0.74
Overall	99		50.0	

H = 0.62 DF = 2 P = 0.734

H = 0.62 DF = 2 P = 0.734 (adjusted for ties)

Value added means are
statistically similar

Grade 3 - Highly Correlated Subject Performance

% Met or exceed expectations by county

Correlation: Average of R, Average of E, Average of S, Average of M, Average of S

	Average of Readi	Average of ELA:	Average of Socia	Average of Math:
Average of ELA:	0.902 0.000			
Average of Socia	0.879 0.000	0.839 0.000		
Average of Math:	0.862 0.000	0.876 0.000	0.857 0.000	
Average of Scien	0.882 0.000	0.840 0.000	0.937 0.000	0.862 0.000

Grade 3 - Highly Correlated Subject Performance

Correlation: Average of R, Average of E, Average of S, Average of M, Average of S

	Average of Read	Average of ELA:	Average of Socia	Average of Math:
Average of ELA:	0.902 0.000			
Average of Socia	0.879 0.000	0.839 0.000		
Average of Math:	0.862 0.000	0.876 0.000	0.857 0.000	
Average of Scien	0.882 0.000	0.840 0.000	0.937 0.000	0.862 0.000

Chart of C2, C5

