

City Study 2021:

HOUSTON

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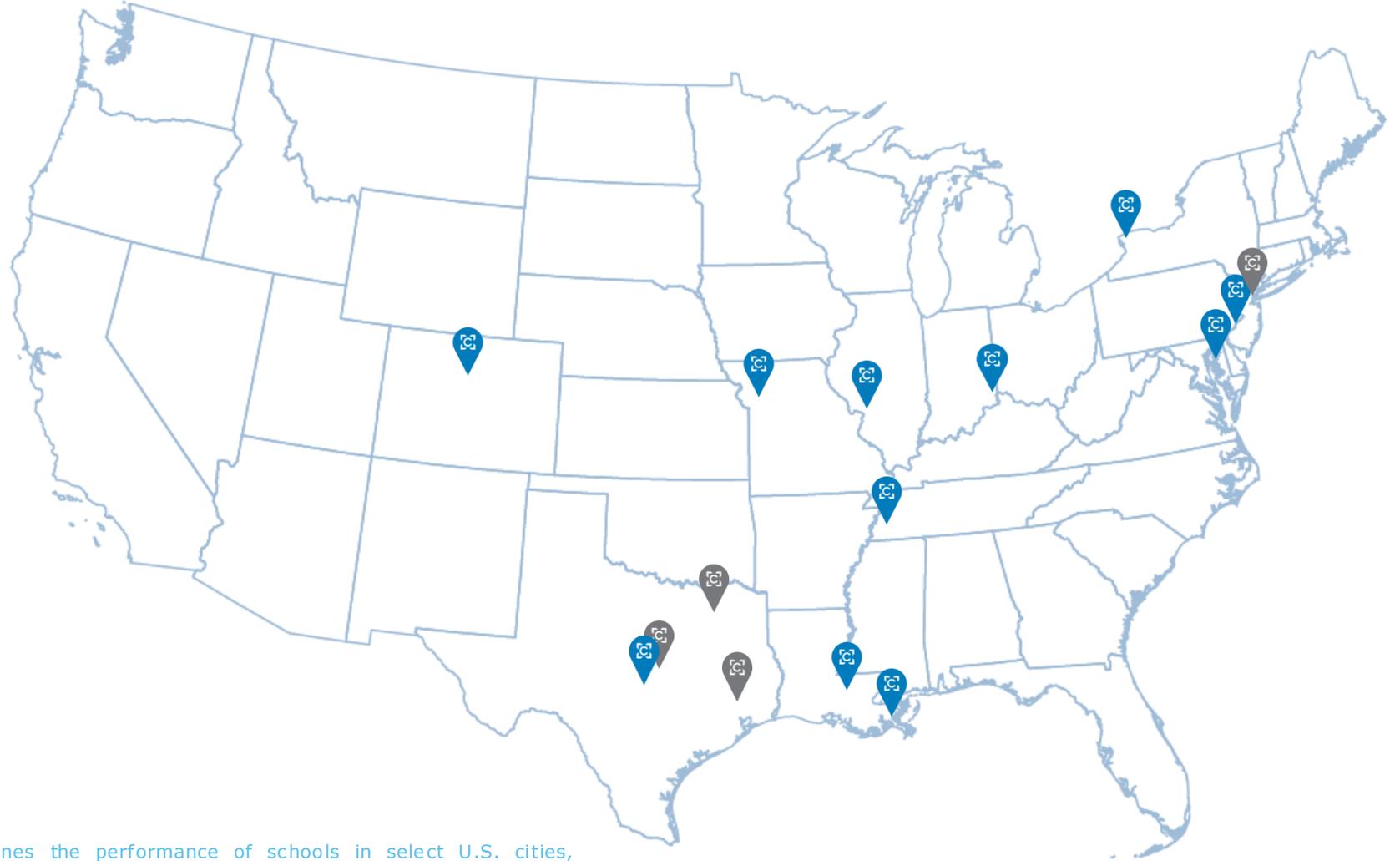


○ REPORT OVERVIEW

01



About The City Studies Project



The City Studies project examines the performance of schools in select U.S. cities, including Houston. We study the academic progress of students as the measure of school performance.

 Cohort 1

 Cohort 2





Sectors of Schools

COMMUNITIES MAY HAVE UP TO THREE SECTORS OF SCHOOLS



CHARTER SCHOOLS

Public schools operated independently from the traditional school district, with autonomy in adapting school designs and held accountable for education results.



Charter Management Organizations (CMOs)

Organizations holding the charter and overseeing the operation of at least three charter schools.



Independent Charter Schools

Organizations holding the charter and overseeing the operation of a single or two charter schools.



SELECTIVE MAGNET SCHOOLS

District-run schools with focused themes and academically selective admission.



OTHER DISTRICT-RUN SCHOOLS

Public schools not belonging to any of above two types.



○ Research Question and Analyses

IN THIS REPORT WE EXAMINE ACADEMIC PERFORMANCE IN HOUSTON USING DATA FROM THE SCHOOL YEARS 2013-14 THROUGH 2017-18. THERE ARE THREE LEVELS OF ANALYSIS.

01

Overall performance in Houston schools over three years.

02

Performance for charter schools, magnet schools and the rest of Houston Public schools over three years

03

Performance in the 2017-2018 school year **by school type, race, poverty status, English language learner (ELL) status, special education status and gender.**

WE MAKE TWO SETS OF COMPARISONS.

- The performance of Houston students is benchmarked against the state average performance, accounting for student characteristics.
- The performance of charter school students and the performance of magnet school students within Houston are then compared to that of similar traditional public school (district school) students within Houston.



○ Measure of Academic Performance

ACHIEVEMENT VS. GROWTH

Achievement scores capture what a student knows at a point in time. They are influenced by students' prior conditions in addition to schools' contributions.

Growth scores indicate how much progress a student makes from one year to the next. Growth scores allow us to zero in on the contributions of schools separately from other factors that affect point-in-time scores.

IN THIS STUDY WE MEASURE ACADEMIC PERFORMANCE AS HOW MUCH GROWTH STUDENTS MAKE FROM ONE YEAR TO THE NEXT

We analyze student growth in standard deviation units so that the results can be assessed for statistical differences. The full set of findings appear in the Appendix.

In the following graphs of findings, we transform growth from standard deviation units into days of learning based on a typical 180-day school year.





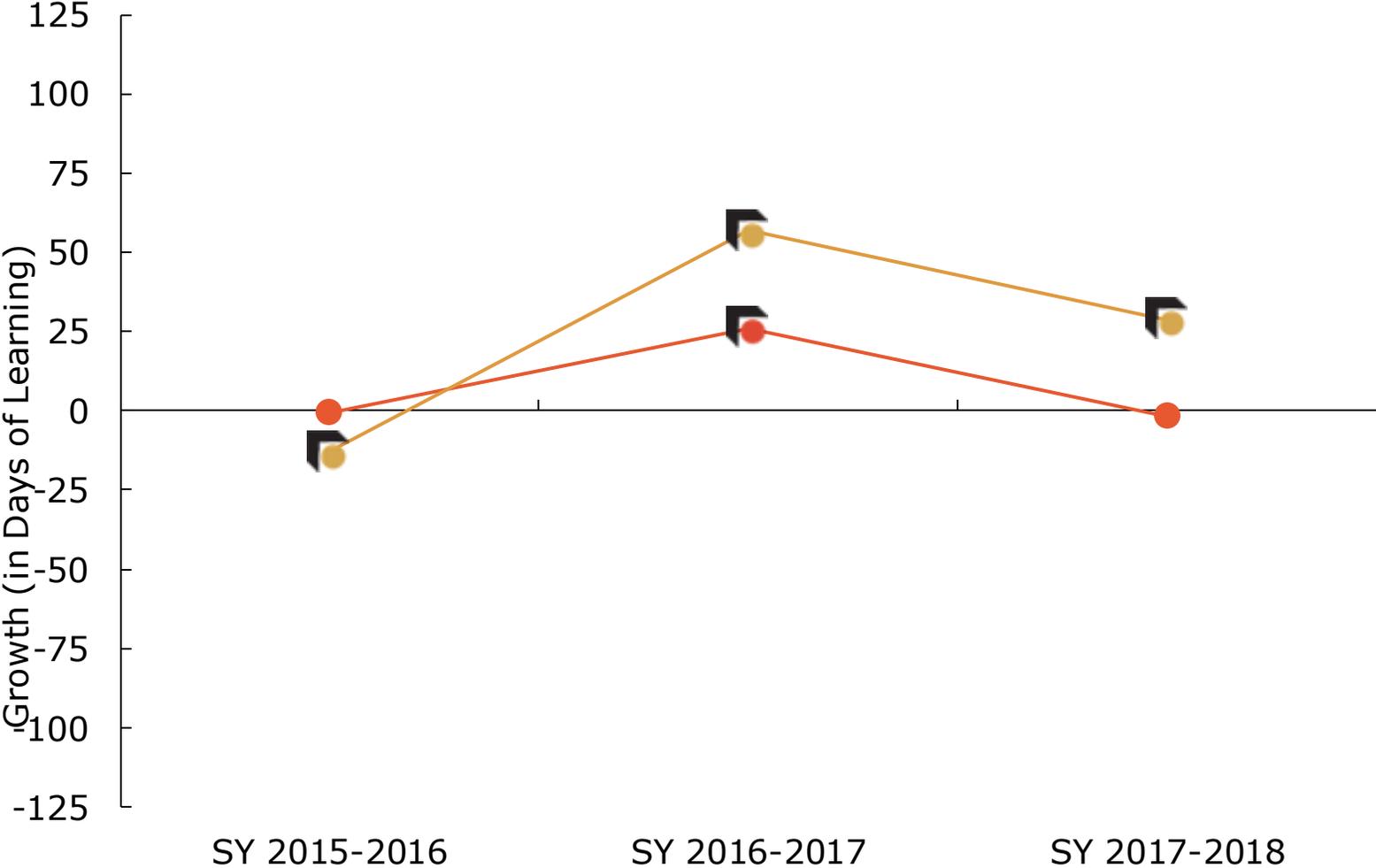
○ RESEARCH FINDINGS

02



Research Findings > Overall Houston Results

> Reading & Math



Average One-Year Learning Gains for All Houston Students Compared to the State Average Learning Gains, by Year and Subject

significantly different at $p < 0.05$

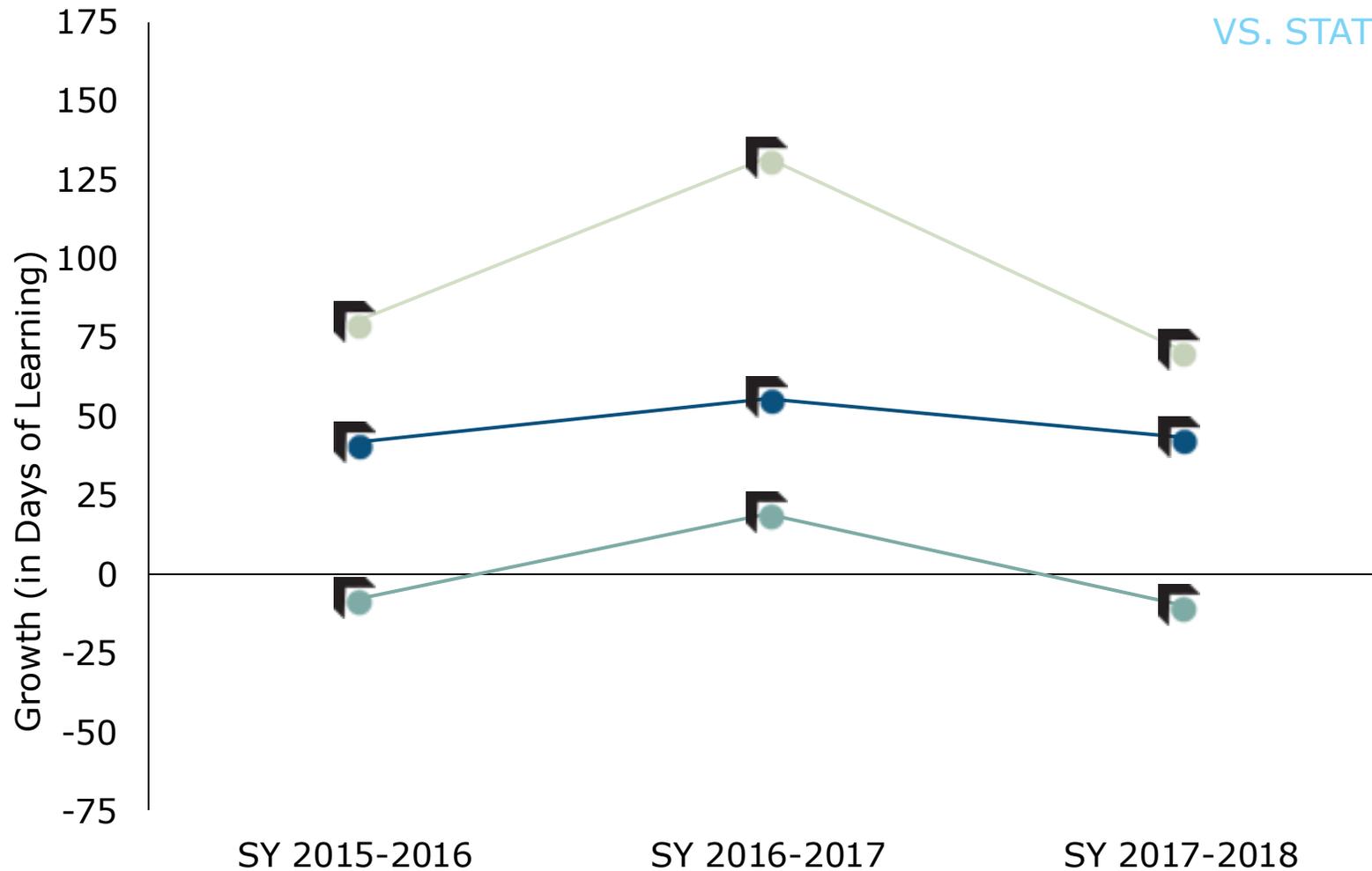
reading math

Research Findings > Sector Analysis

> Reading

VS. STATE & COMPARISON WITHIN HOUSTON

Learning Gains in Reading for Students in Houston
Charter Schools, Houston Magnet Schools, and
Houston District Schools Compared to the State
Average Learning Gains, by Year



Tests of Differences			
Reading	'15-'16	'16-'17	'17-'18
Charter vs. District	↙	↙	↙
Magnet vs. District	↙	↙	↙
Charter vs. Magnet		↙	

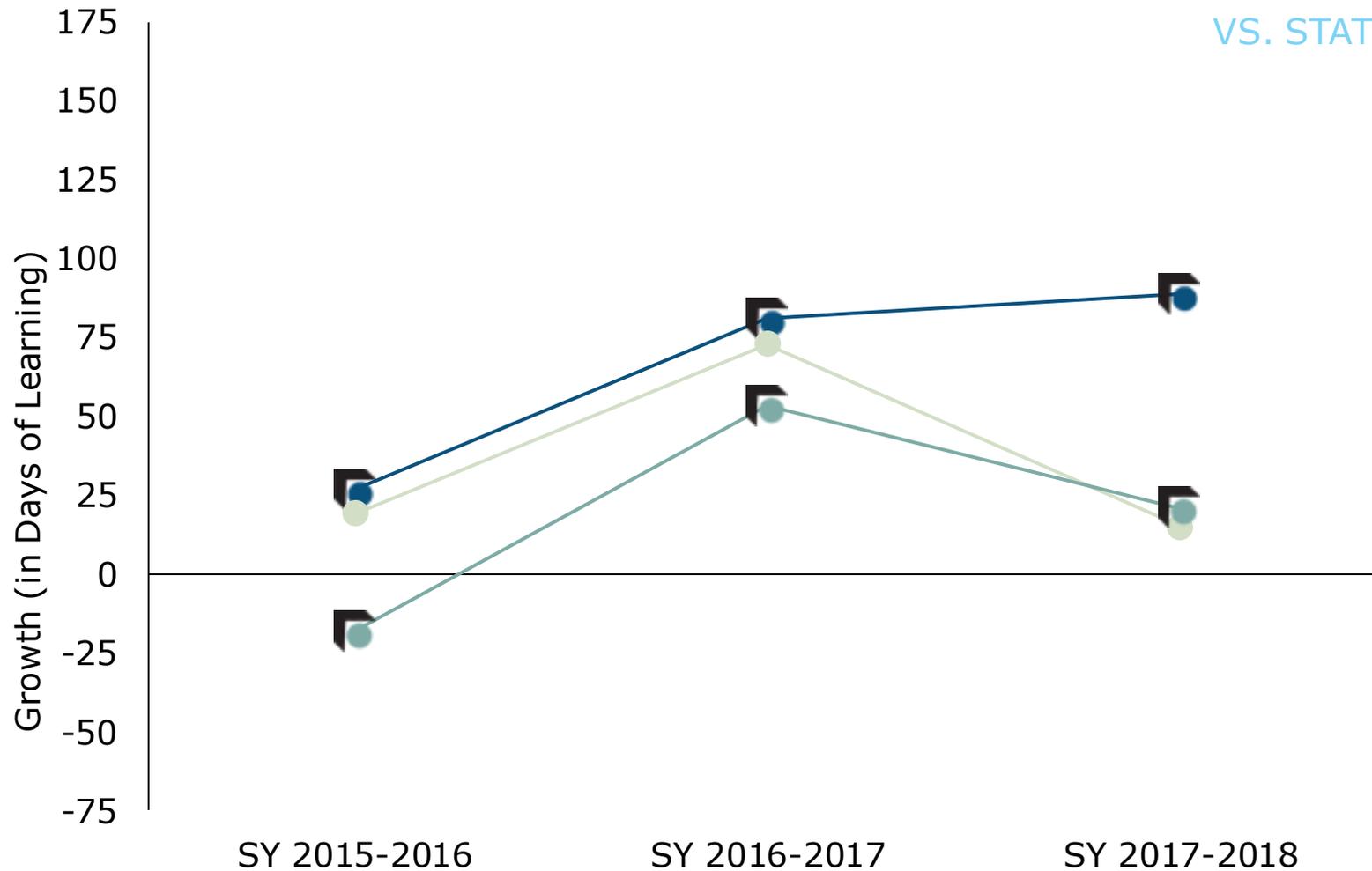
↙ significantly different at $p < 0.05$

● charter ● magnet ● district

Research Findings > Sector Analysis > Math

VS. STATE & COMPARISON WITHIN HOUSTON

Learning Gains in Math for Students in Houston Charter Schools, Houston Magnet Schools, and Houston District Schools Compared to the State Average Learning Gains, by Year



Tests of Differences			
Math	'15-'16	'16-'17	'17-'18
Charter vs. District	↙	↙	↙
Magnet vs. District			
Charter vs. Magnet			↙

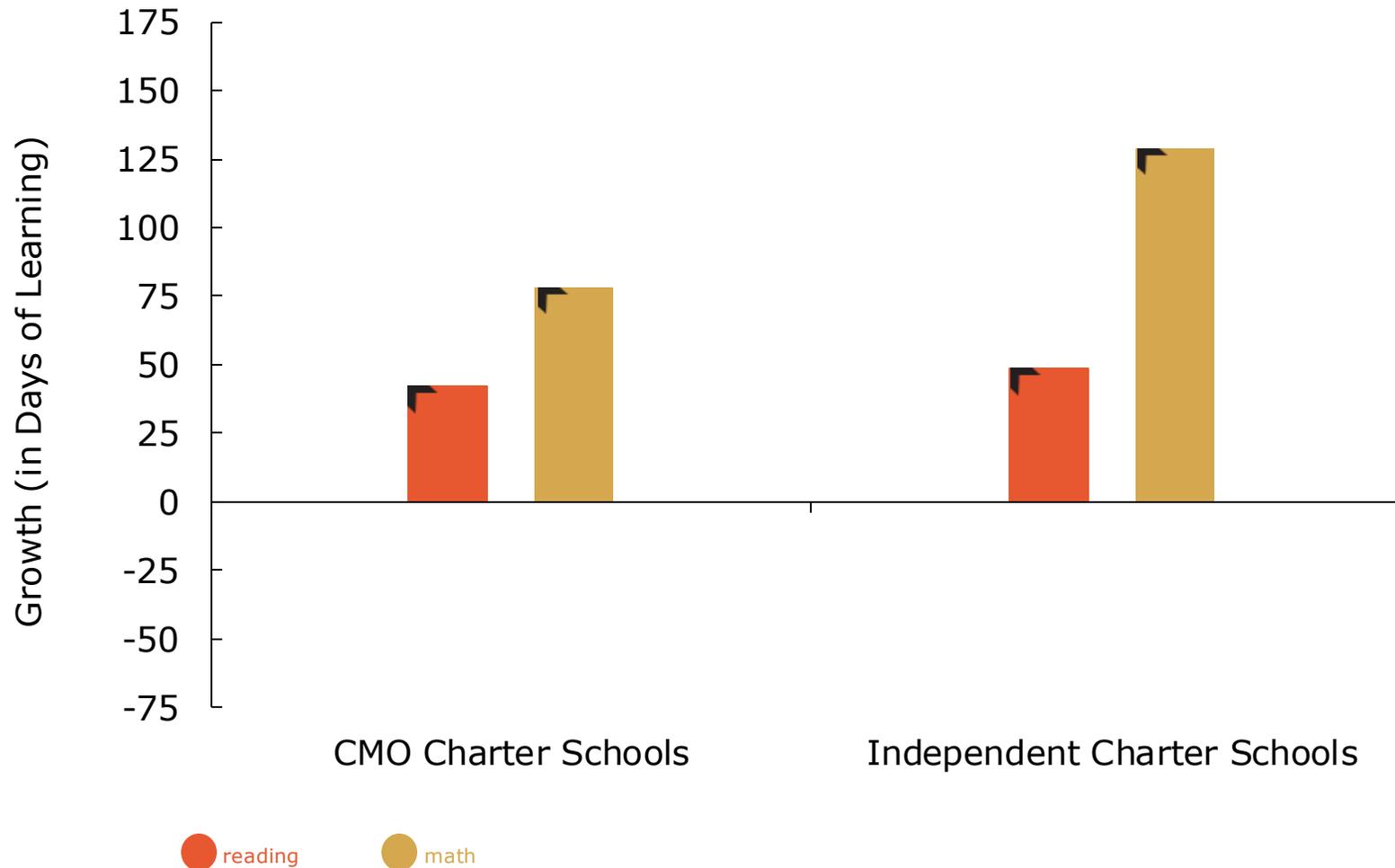
↙ significantly different at $p < 0.05$

● charter ● magnet ● district

Research Findings > Charter Subsector Analysis

> vs. state & comparison within Houston

Relative Learning Gains for Students in Houston CMO-Affiliated Charter Schools and Independent Houston Charter Schools Compared to the Average Learning Gains for All Student in the State, by Subject



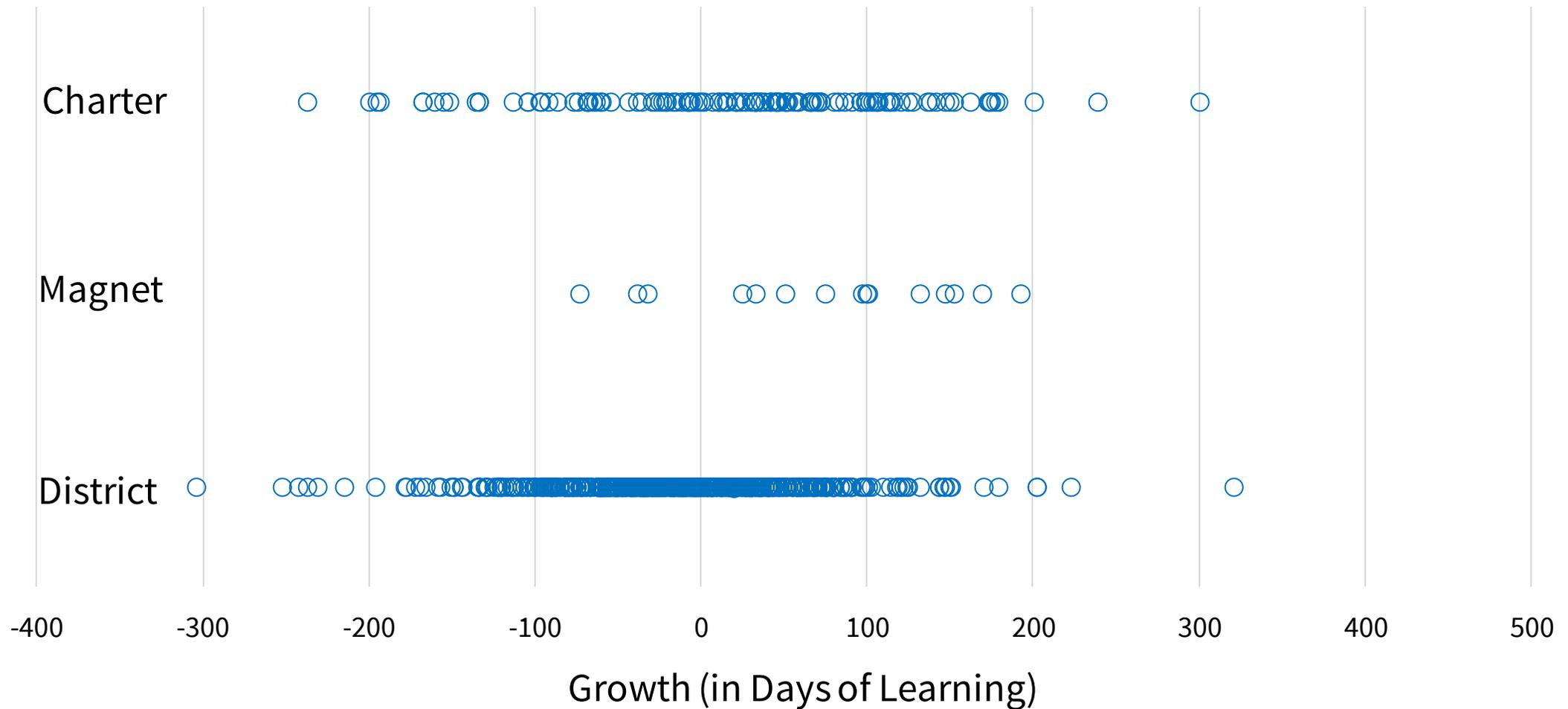
Tests of Differences

Reading sig
CMOs vs Independent Charter Schools

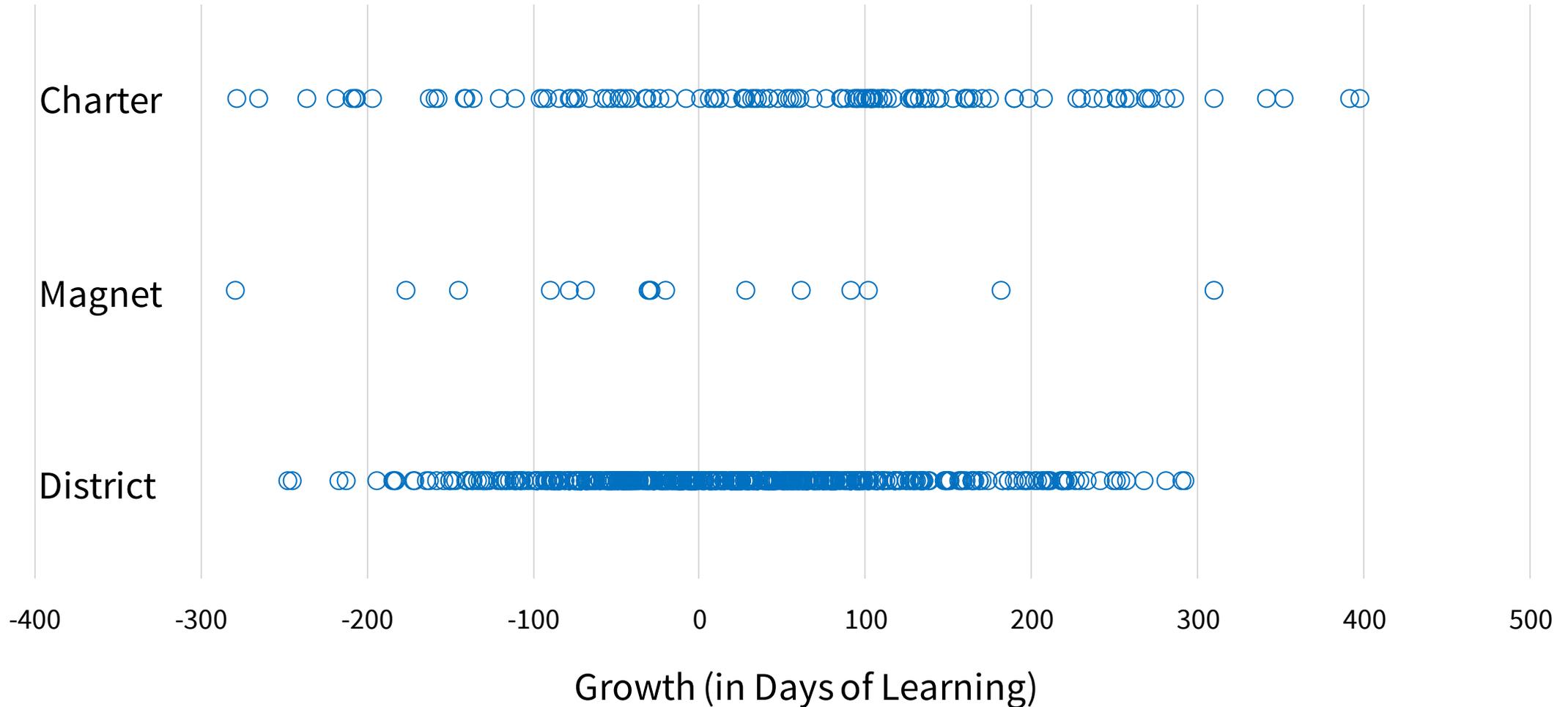
Math
CMOs vs Independent Charter Schools

significantly different at $p < 0.05$

Research Findings > School-Level Performance by Sector > Reading



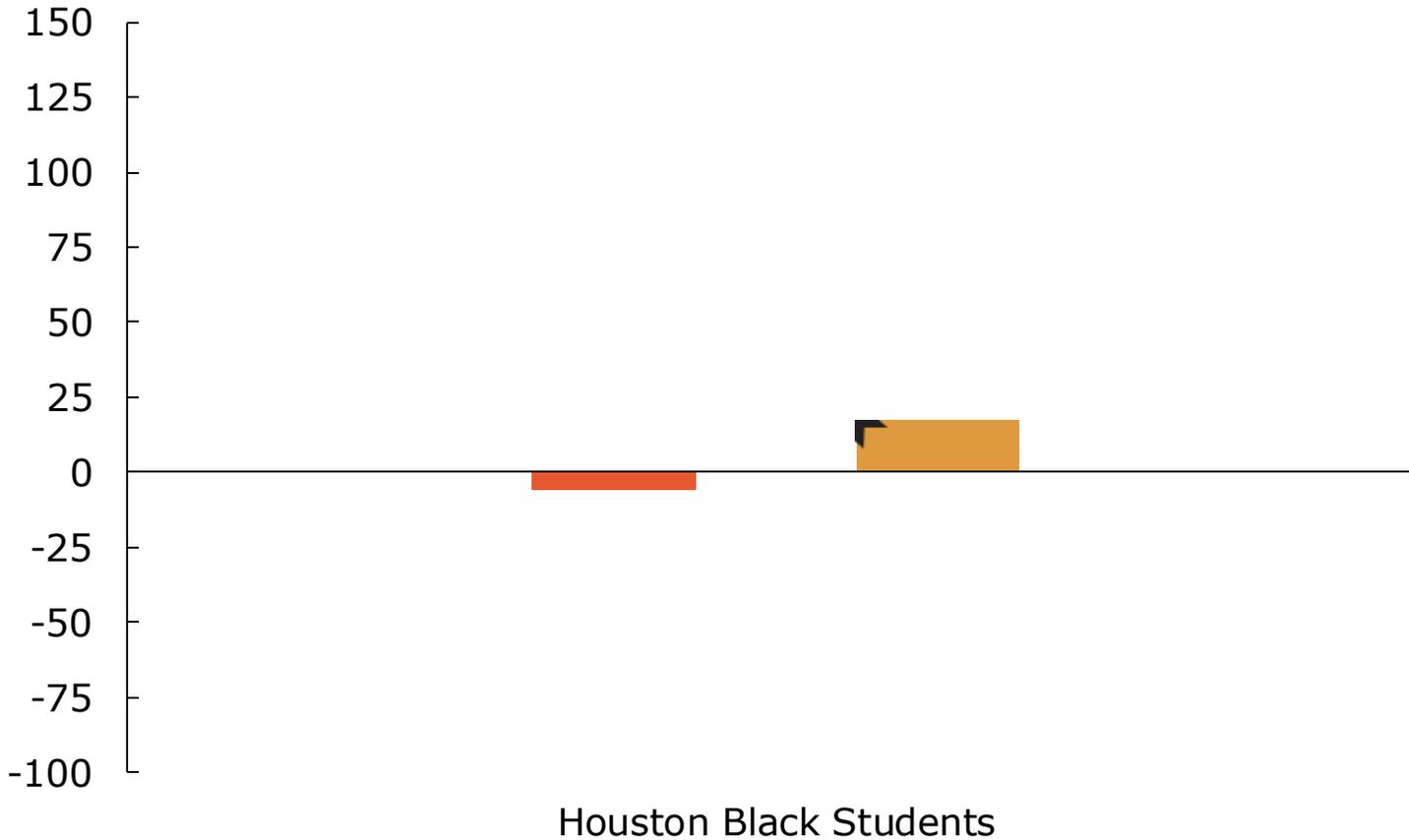
Research Findings > School-Level Performance by Sector > Math



Research Findings > Student Subgroup Analysis > Black Students

ALL VS. STATE

Learning Gains for All Houston Black Students Compared to the Average Learning Gains of Black Students Statewide, by Subject



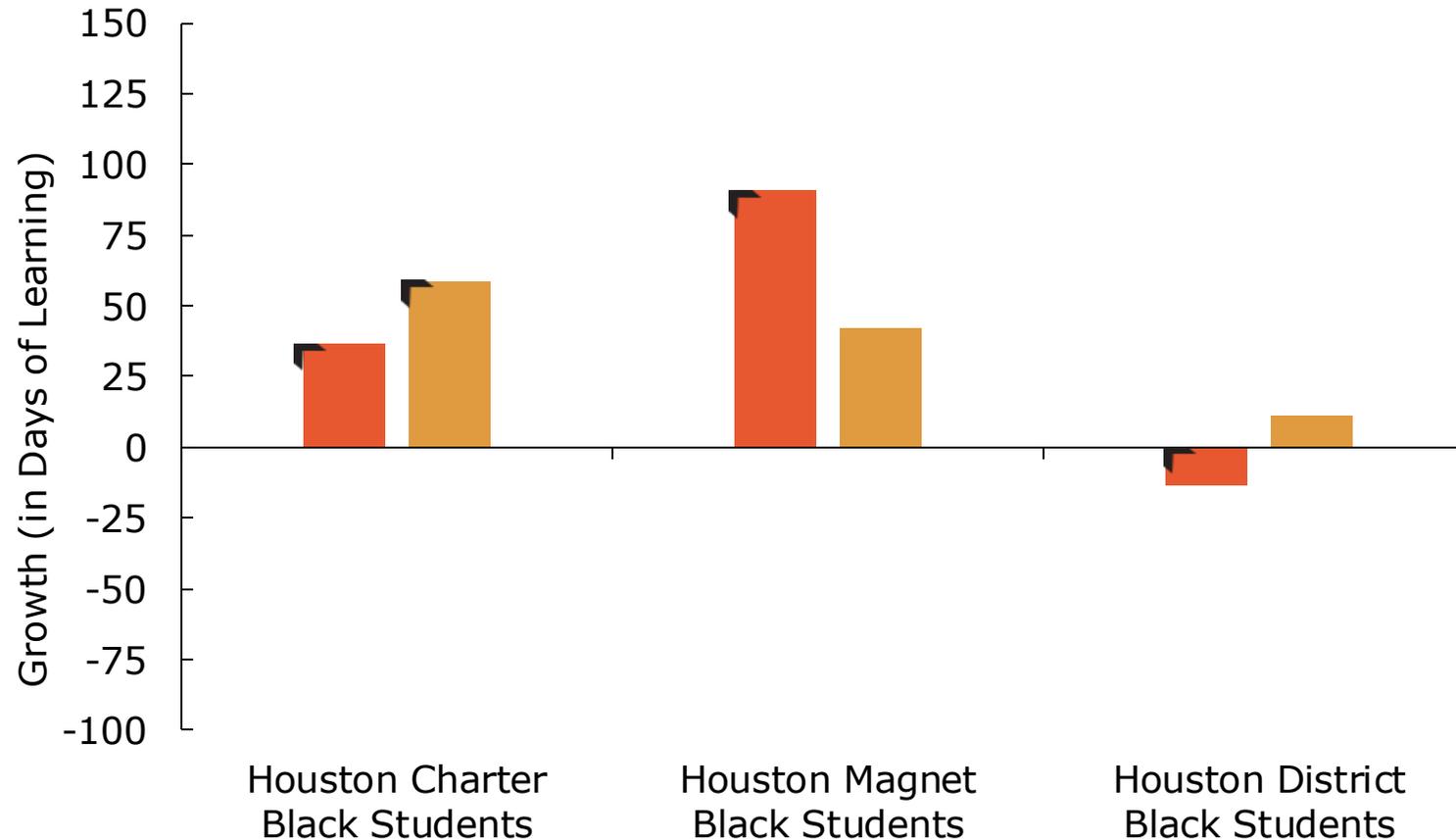
significantly different at $p < 0.05$

reading math

Research Findings > Student Subgroup Analysis > Black Students

VS. STATE BY SECTOR & COMPARISON WITHIN HOUSTON

Learning Gains for Black Students in Houston Charter Schools, Black Students in Houston Magnet Schools, and Black Students in Houston District Schools Compared to the Average Learning Gains of Black Students Statewide, by Subject



Tests of Differences

Reading

Charter Black vs. District Black
Magnet Black vs. District Black

sig

Math

Charter Black vs. District Black
Magnet Black vs. District Black

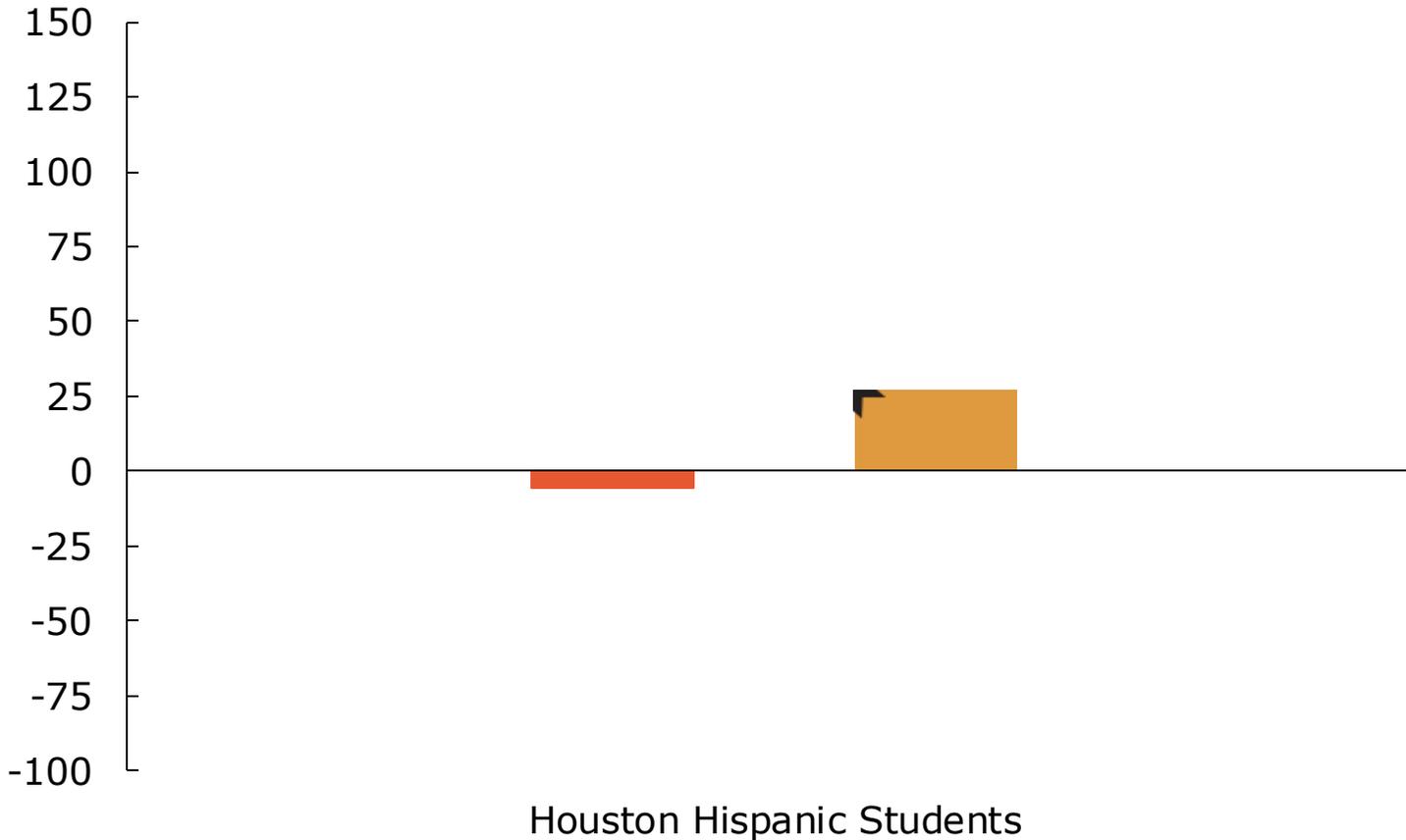
significantly different at $p < 0.05$

reading math

Research Findings > Student Subgroup Analysis > Hispanic Students

ALL VS. STATE

Learning Gains for All Houston Hispanic Students
Compared to the Average Learning Gains of Hispanic
Students Statewide, by Subject



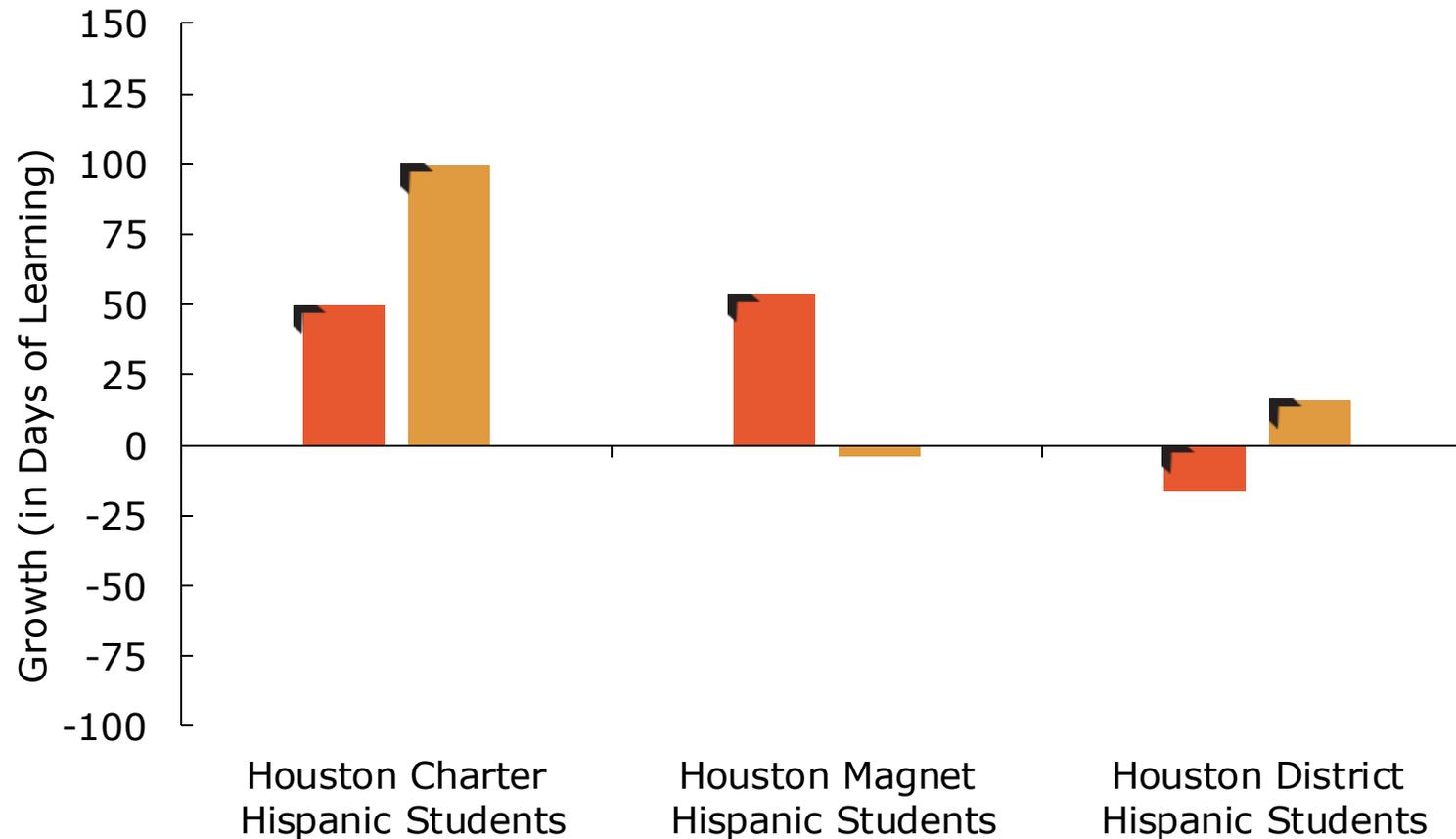
significantly different at $p < 0.05$

reading math

Research Findings > Student Subgroup Analysis > Hispanic Students

VS. STATE BY SECTOR & COMPARISON WITHIN HOUSTON

Learning Gains for Hispanic Students in Houston Charter Schools, Hispanic Students in Houston Magnet Schools, and Hispanic Students in Houston District Schools Compared to the Average Learning Gains of Hispanic Students Statewide, by Subject



Tests of Differences

Subject	Comparison	Significantly Different (p < 0.05)
Reading	Charter Hispanic vs. District Hispanic	Yes
	Magnet Hispanic vs. District Hispanic	Yes
Math	Charter Hispanic vs. District Hispanic	Yes
	Magnet Hispanic vs. District Hispanic	No

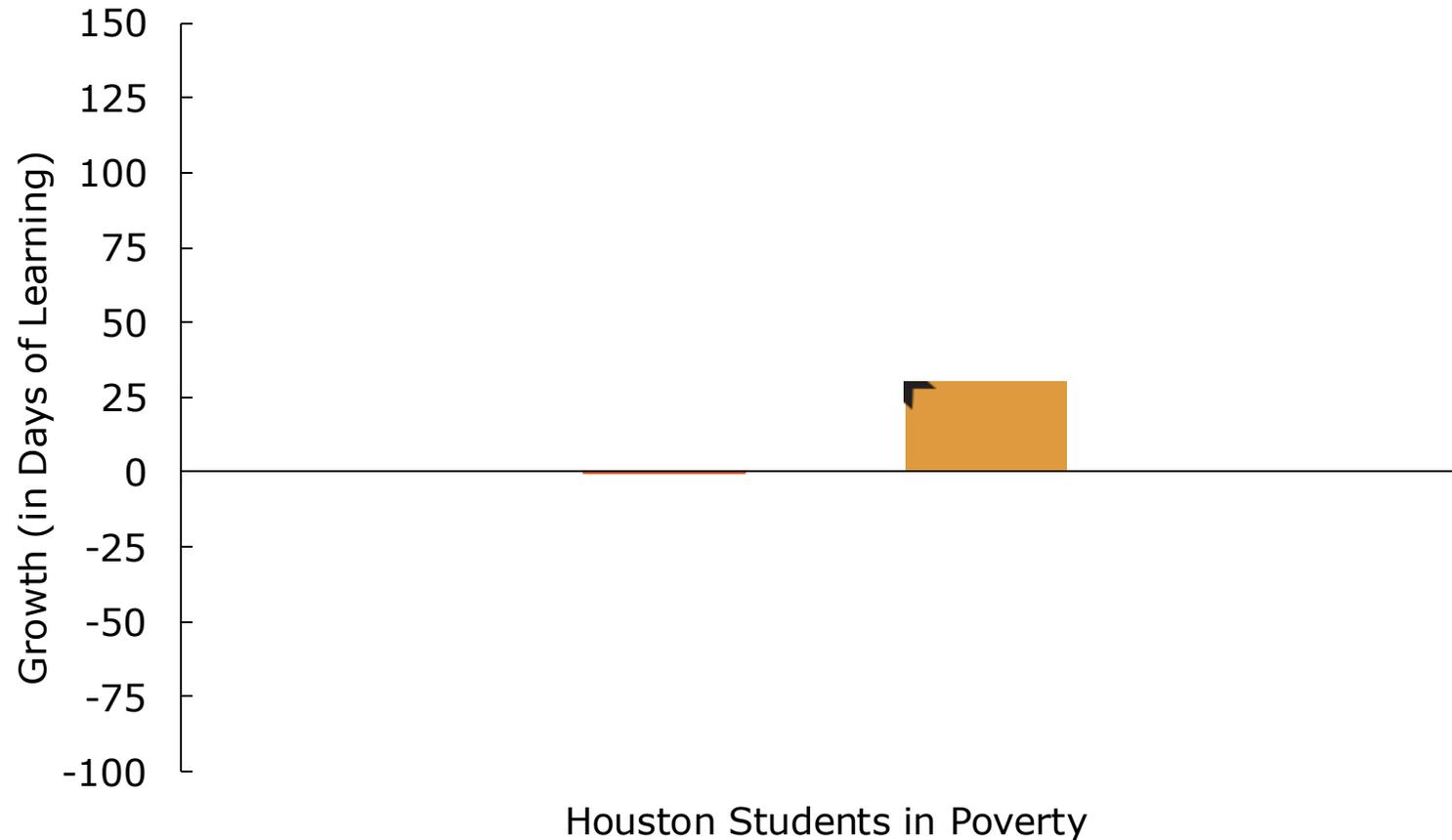
significantly different at $p < 0.05$

reading math

Research Findings > Student Subgroup Analysis > Students in Poverty

ALL VS. STATE

Learning Gains for All Houston Students in Poverty
Compared to the Average Learning Gains of Students
in Poverty Statewide, by Subject



significantly different at $p < 0.05$

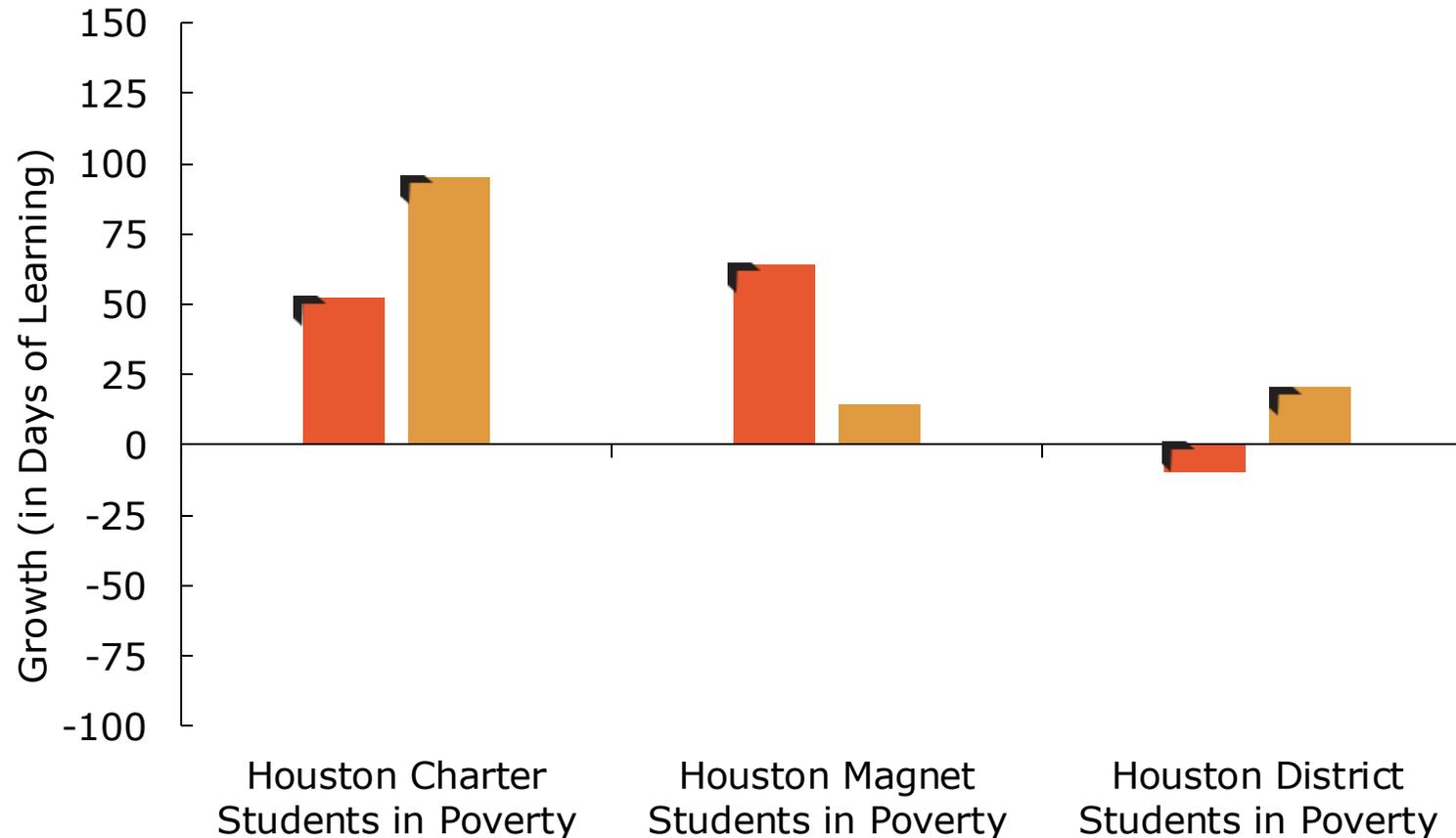
reading

math

Research Findings > Student Subgroup Analysis > Students in Poverty

VS. STATE BY SECTOR & COMPARISON WITHIN HOUSTON

Learning Gains for Houston Charter School Students in Poverty, Houston Magnet School Students in Poverty, and Houston District School Students in Poverty Compared to the Average Learning Gains of Students in Poverty Statewide, by Subject



Tests of Differences

Subject	Comparison	Significance
Reading	Charter Poverty vs. District Poverty	sig
	Magnet Poverty vs. District Poverty	sig
Math	Charter Poverty vs. District Poverty	sig
	Magnet Poverty vs. District Poverty	

significantly different at $p < 0.05$

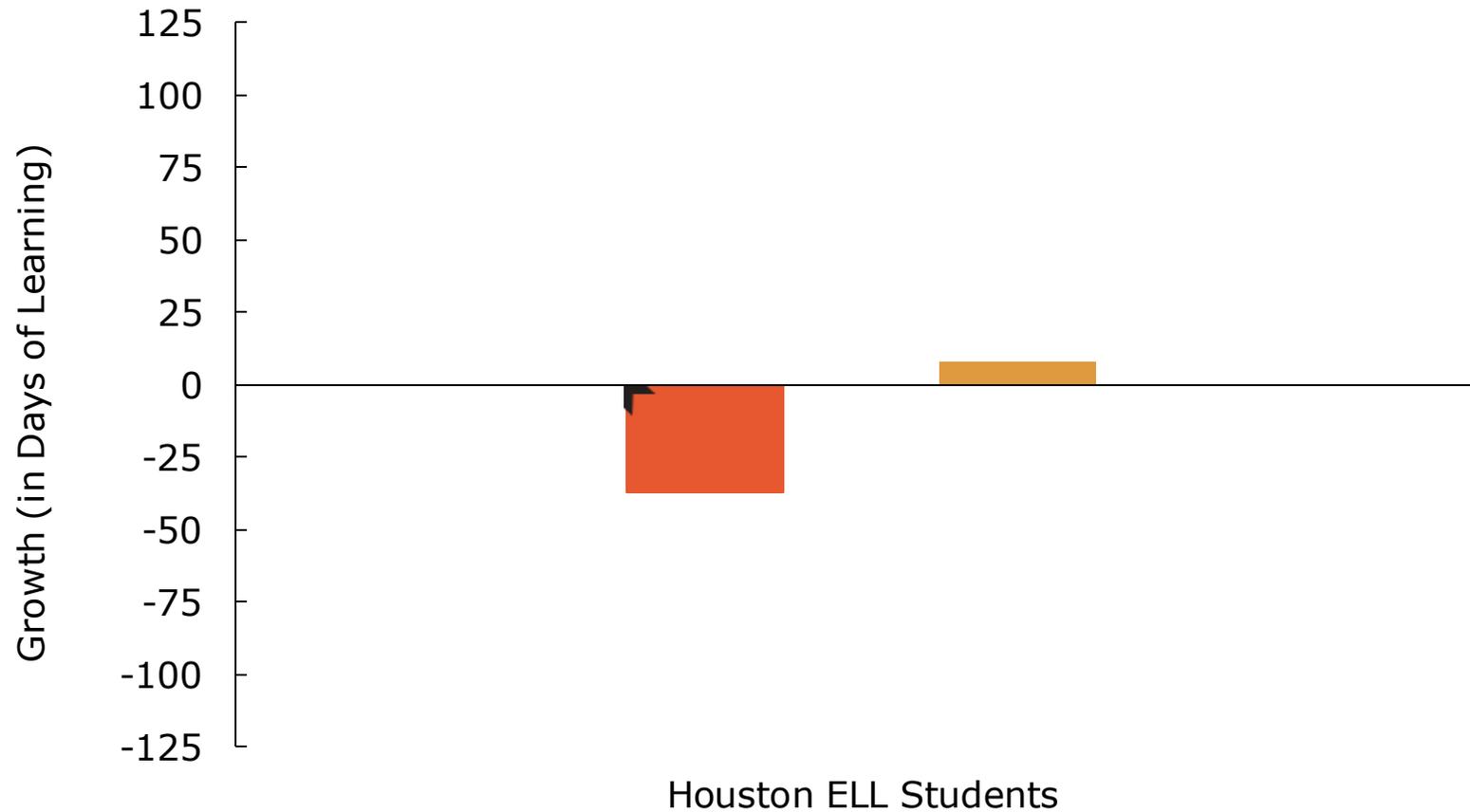
● reading ● math

Research Findings > Student Subgroup Analysis

> ELL Students

ALL VS. STATE

Learning Gains for All ELL Students in Houston Compared to the Average Learning Gains of ELL Students Statewide, by Subject



significantly different at $p < 0.05$

reading

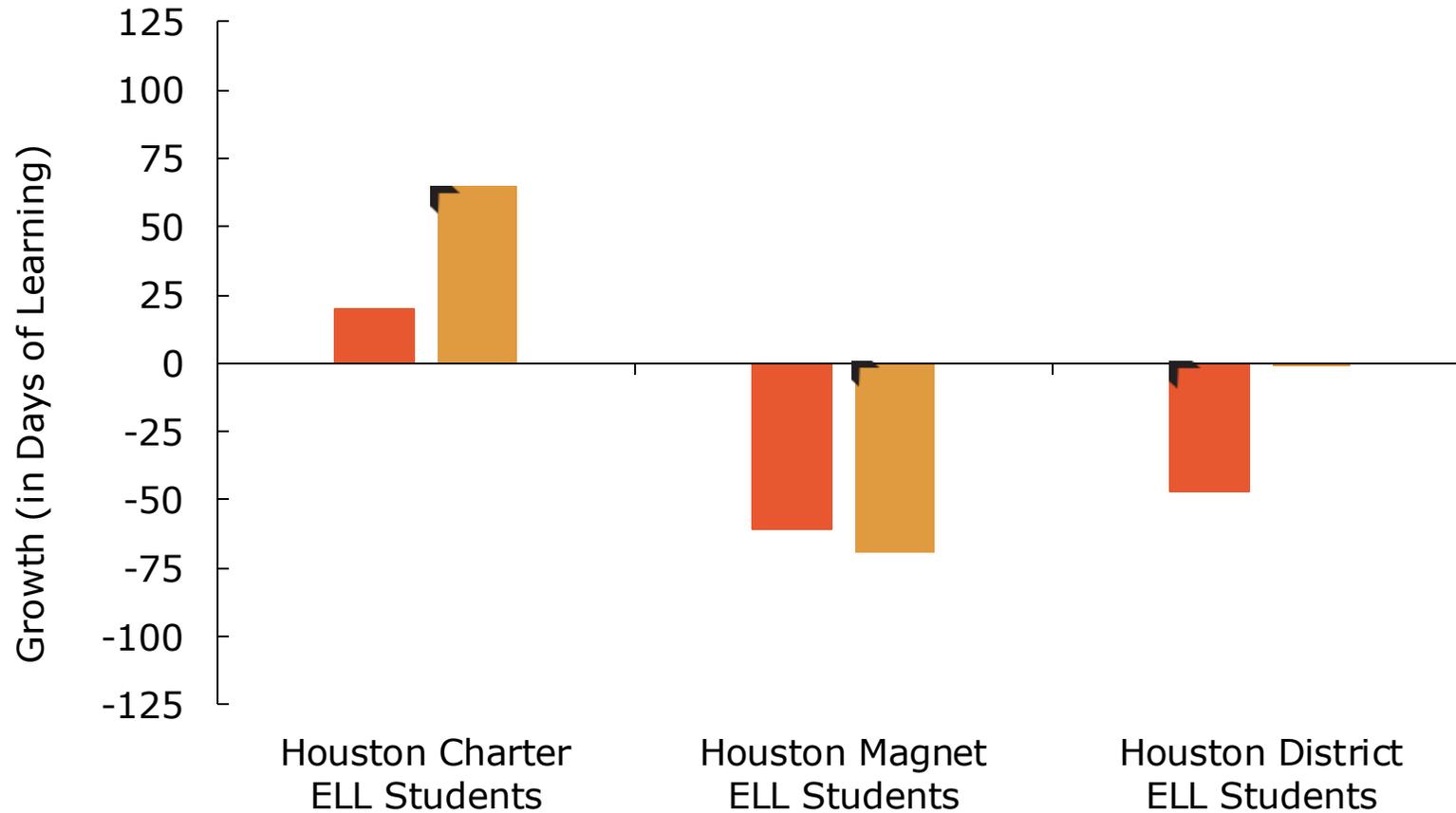
math

Research Findings > Student Subgroup Analysis

> ELL Students

VS. STATE BY SECTOR & COMPARISON WITHIN HOUSTON

Learning Gains for ELL Students in Houston Charter Schools, ELL Students in Houston Magnet Schools, and ELL Students in Houston District Schools Compared to the Average Learning Gains of ELL Students Statewide, by Subject



Tests of Differences

Subject	Comparison	Significant Difference
Reading	Charter ELL vs. District ELL	Yes (sig)
	Magnet ELL vs. District ELL	No
Math	Charter ELL vs. District ELL	Yes
	Magnet ELL vs. District ELL	No

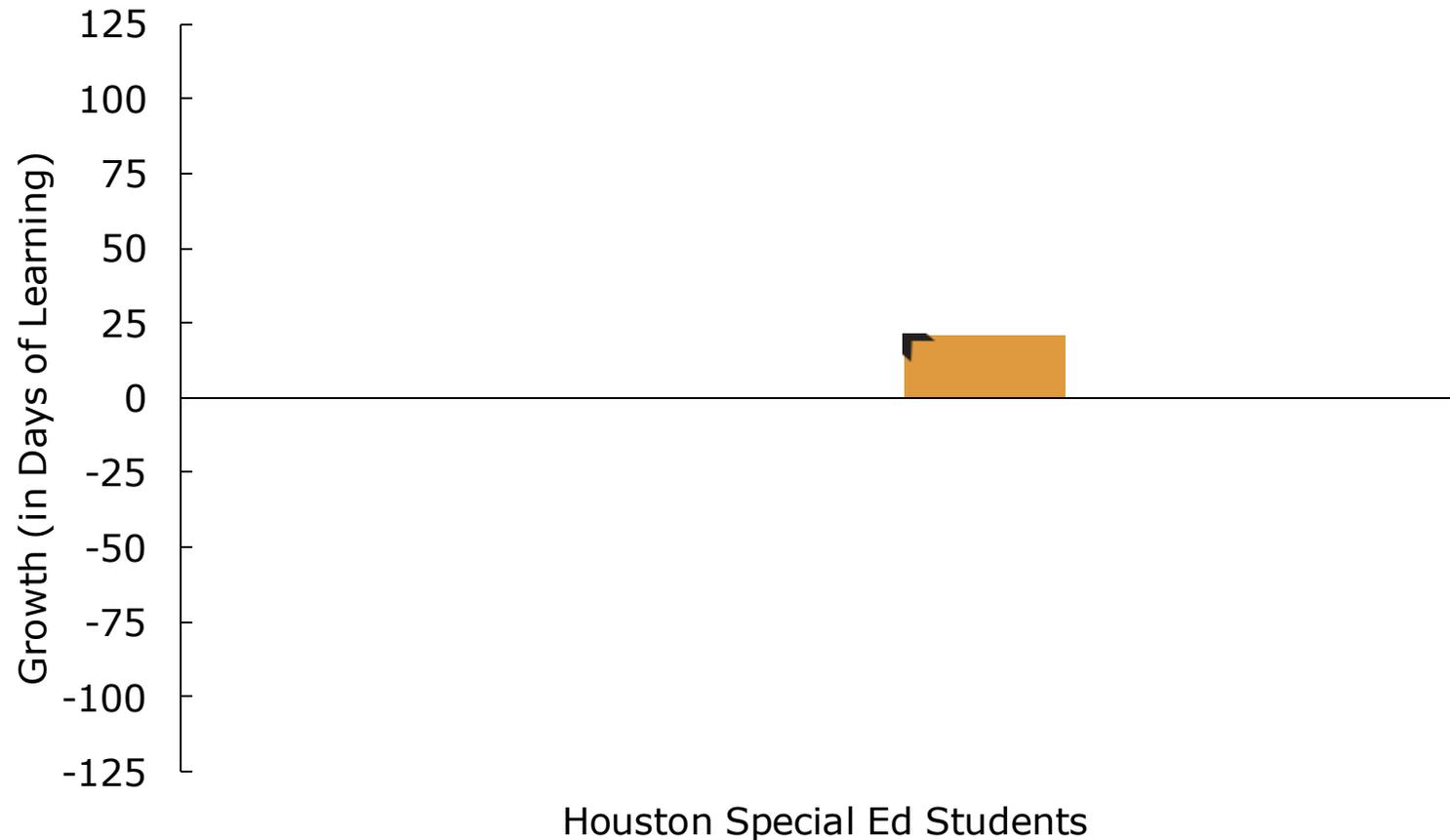
significantly different at $p < 0.05$

● reading ● math

Research Findings > Student Subgroup Analysis > Special Ed Students

ALL VS. STATE

Learning Gains for All Houston Students in Special Education Compared to the Average Learning Gains of Students in Special Education Statewide, by Subject



significantly different at $p < 0.05$

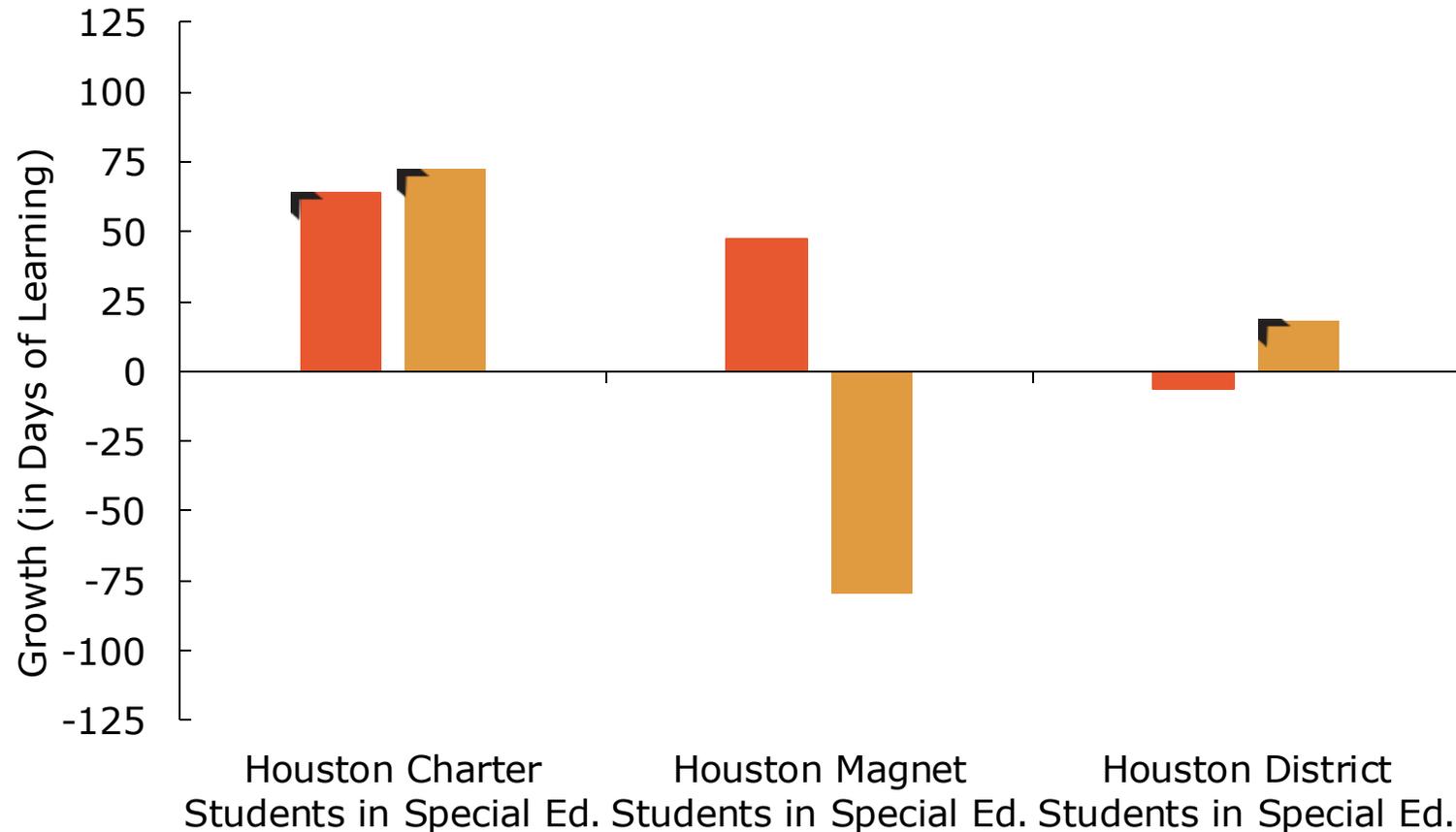
reading

math

Research Findings > Student Subgroup Analysis > Special Ed Students

VS. STATE BY SECTOR & COMPARISON WITHIN HOUSTON

Learning Gains for Houston Charter School Students in Special Ed., Houston Magnet School Students in Special Ed., and Houston District School Students in Special Ed. Compared to the Average Learning Gains of Students in Special Ed. Statewide, by Subject



Tests of Differences

Reading sig
 Charter Sped vs. District Sped
 Magnet Sped vs. District Sped

Math
 Charter Sped vs. District Sped
 Magnet Sped vs. District Sped

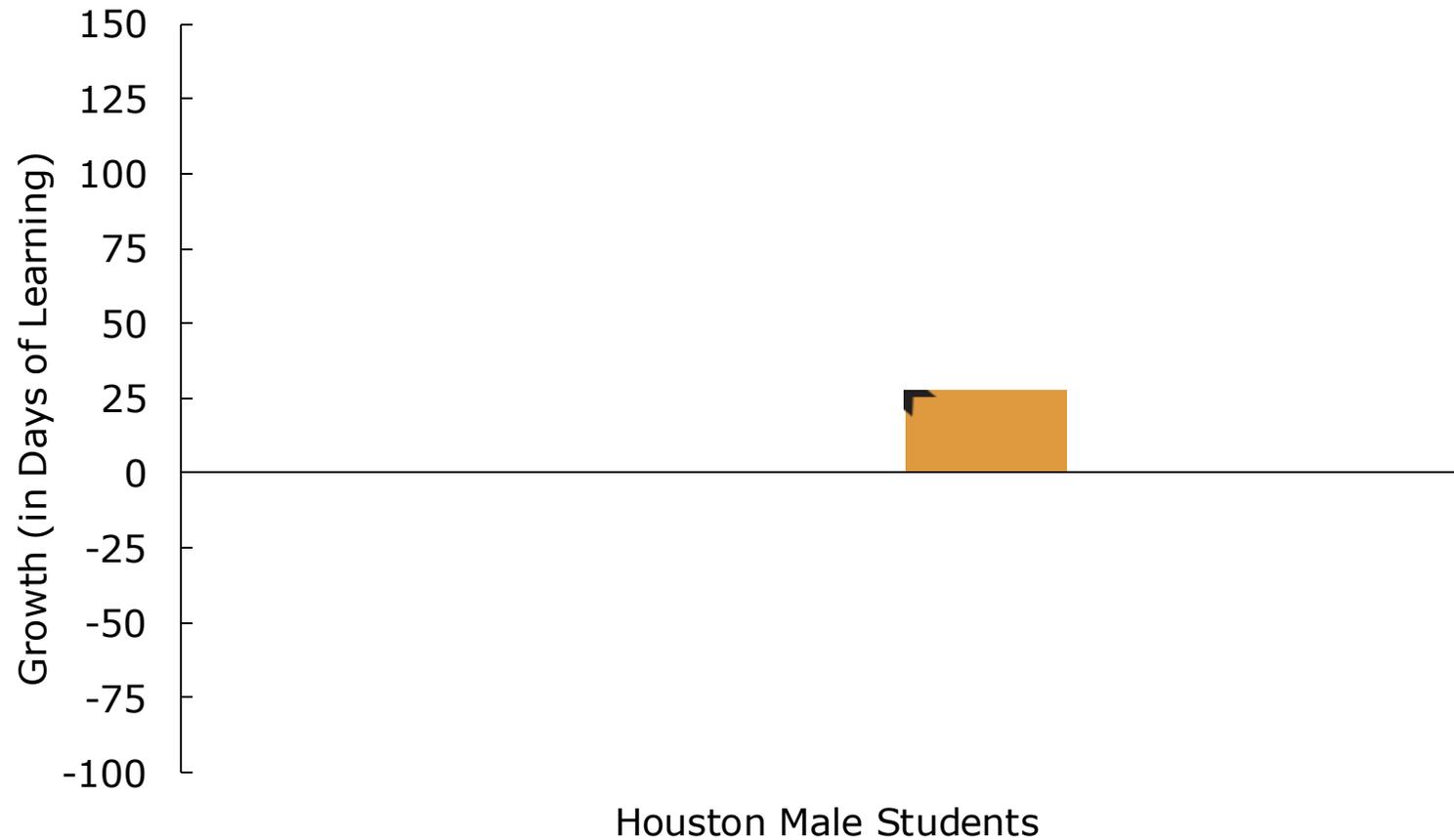
significantly different at $p < 0.05$

● reading ● math

Research Findings > Student Subgroup Analysis > Male Students

ALL VS. STATE

Learning Gains for All Houston Male Students
Compared to the Average Learning Gains of Male
Students Statewide, by Subject



significantly different at $p < 0.05$

reading

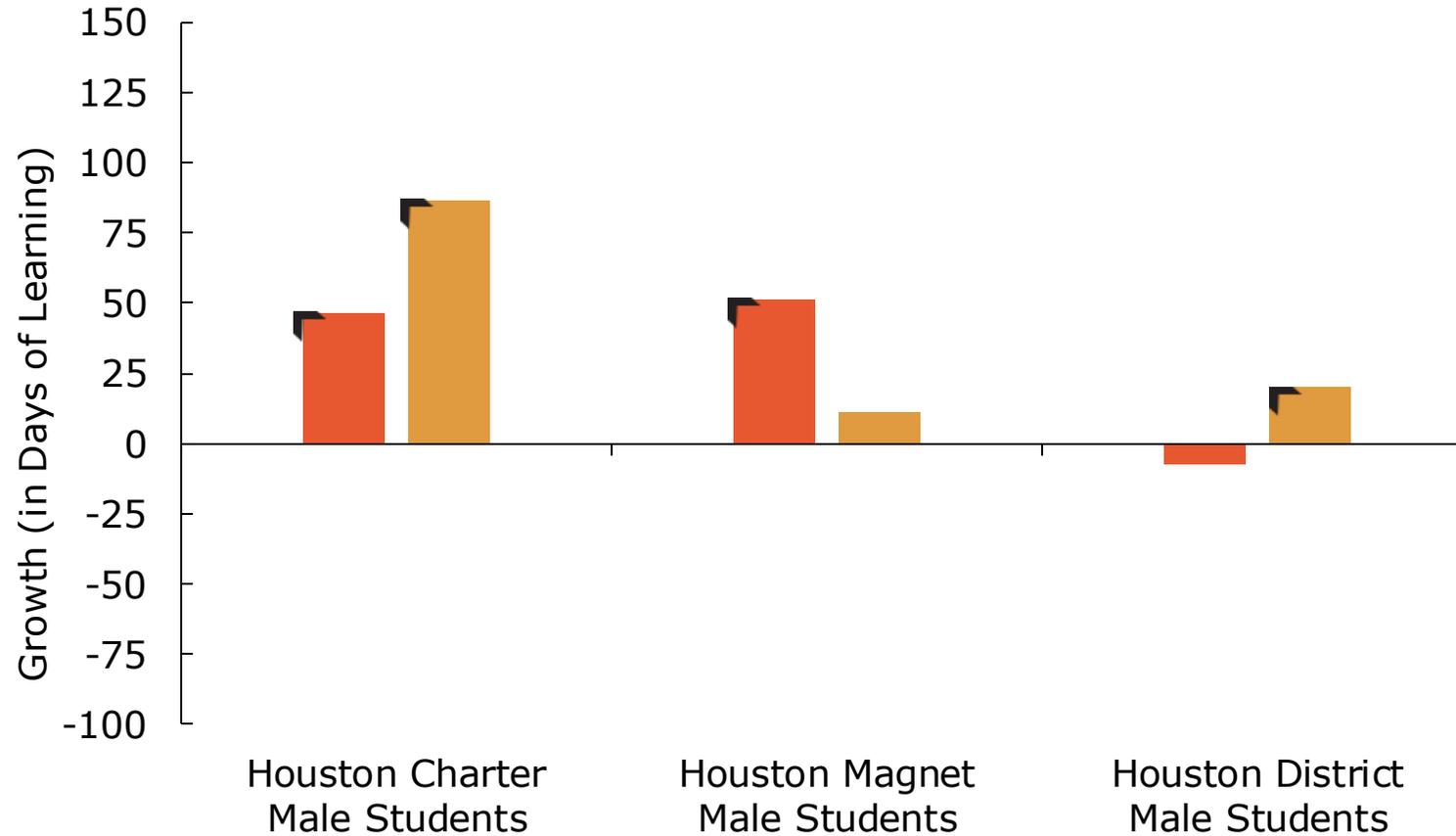
math

Research Findings > Student Subgroup Analysis

> Male Students

VS. STATE BY SECTOR & COMPARISON WITHIN HOUSTON

Learning Gains for Male Students in Houston Charter Schools, Male Students in Houston Magnet Schools, and Male Students in Houston District Schools Compared to the Average Learning Gains of Male Students Statewide, by Subject



Tests of Differences

Reading

Charter Male vs. District Male
Magnet Male vs. District Male

sig

Math

Charter Male vs. District Male
Magnet Male vs. District Male

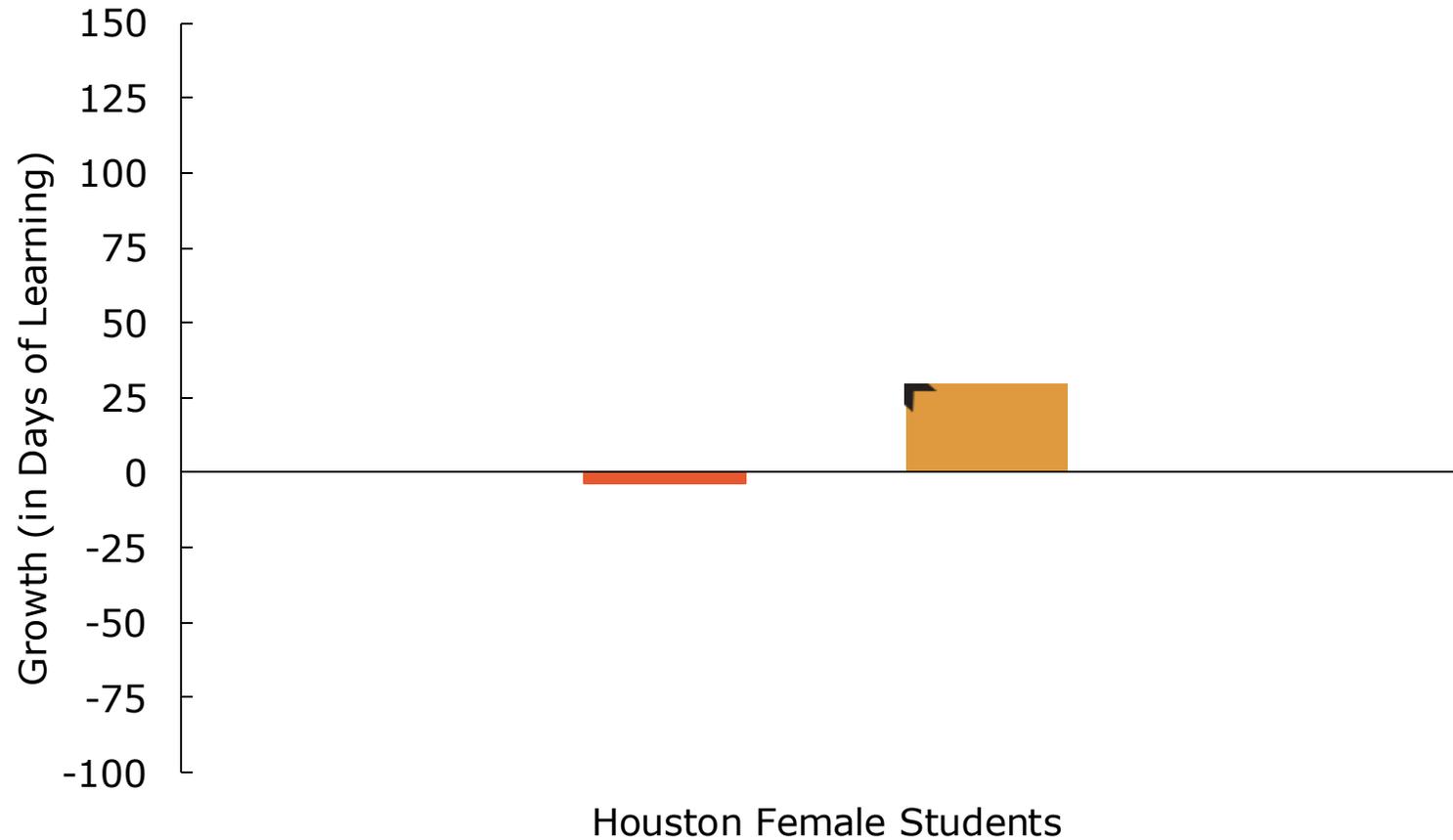
significantly different at $p < 0.05$

reading math

Research Findings > Student Subgroup Analysis > Female Students

ALL VS. STATE

Learning Gains for All Houston Female Students
Compared to the Average Learning Gains of Female
Students Statewide, by Subject



significantly different at $p < 0.05$

reading

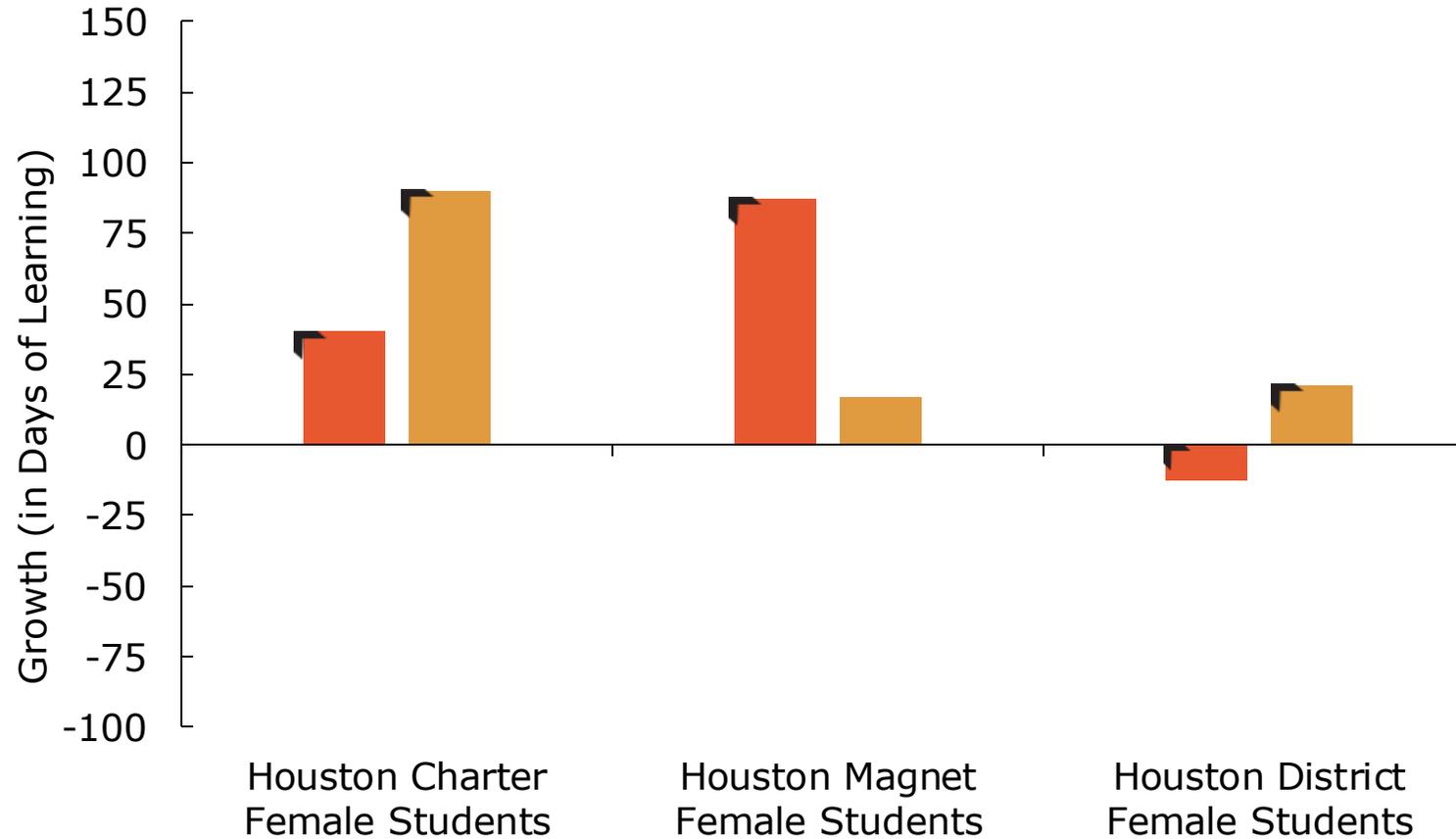
math

Research Findings > Student Subgroup Analysis

> Female Students

VS. STATE BY SECTOR & COMPARISON WITHIN HOUSTON

Learning Gains for Female Students in Houston Charter Schools, Female Students in Houston Magnet Schools, and Female Students in Houston District Schools Compared to the Average Learning Gains of Female Students Statewide, by Subject



Tests of Differences

Reading

Charter Female vs. District Female

Magnet Female vs. District Female

sig

Math

Charter Female vs. District Female

Magnet Female vs. District Female

significantly different at $p < 0.05$

reading math

○ Summary of Findings



The summary of the findings from the analysis of Houston schools is presented [here](#).





○ APPENDIXES

03



Acknowledgments



Texas Education Agency, Texas Schools Project, and Texas Higher Education Advisory Board provided supports in the acquisition of student-level data.

Good Reason Houston assisted CREDO with verifying the list of public schools in Houston.

The Houston Independent School District assisted CREDO with identifying selective magnet schools in Houston.

Disclaimer: The conclusions of this research do not necessarily reflect the opinions or official position of the Texas Education Agency, the Texas Higher Education Coordinating Board, the Texas Workforce Commission or the State of Texas.



Types of Charter Schools

There are two types of charter schools.



CHARTER MANAGEMENT ORGANIZATIONS (CMOs)

Organizations holding the charter and overseeing the operation of at least three charter schools.



INDEPENDENT CHARTER SCHOOLS

Organization holding the charter and overseeing the operation of a single charter school. It may run the school directly or contract with an organization which provides services to one or two charter schools.



OUR ANALYSES OF Houston CHARTER SCHOOLS INCLUDE A BREAKOUT OF CMOs AND INDEPENDENT CHARTERS.

- With more schools and students than a single charter school, CMOs have some operational advantages in their ability to spread administrative fixed costs, thus providing the possibility of greater efficiency. In addition, CMOs may be able to support additional programs and more robust staffing.
- Whether CMOs lead to better student outcomes is a matter of interest across the country.



○ Methods



The annual academic growth of students in Houston from 2014-15 to 2017-18, overall and by sector, is benchmarked to the state average growth, accounting for student characteristics.

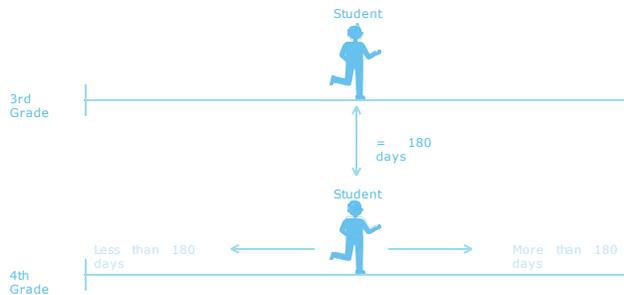
We also explore how one-year growth of Houston students for the period ending in Spring 2018 differs by school type, race, poverty status, English language learner status, special education status, and gender.



Days of Learning

CREDO USES ADVANCED TECHNOLOGY AND SOPHISTICATED STATISTICAL TOOLS TO MEASURE STUDENTS, SCHOOLS AND THE EDUCATION LANDSCAPE.

While these tools create precise and reliable answers, they are presented in technical terms that are not user-friendly to a general audience. To translate the technical results into terms that are accessible to non-technical audiences, CREDO developed Days of Learning.



01

Think about the students in your state's public schools. For many of their years of schooling, they take achievement tests to measure what they know at the end of the school year. We can identify the average score for each test each year.

02

Imagine a student who scores exactly at the average in one year, say 4th grade, and then in the following year, scores exactly at the average again on the 5th-grade test. The amount of year-to-year learning for that student show us what the average learning is for all the students who took both tests.

03

We do that calculation for every grade the state tests: 4th to 5th, 5th to 6th, and so on.

04

CREDO uses those annual measures of average learning to represent a typical year of learning, and equates that to a typical 180-day school year. We say that the student in our example has gained 180 days of learning.

05

If a student makes more progress than the average student, we take the amount of extra achievement and translate it into 180-days of learning plus "X" extra days. We are creating a measure of student learning as if the student went to school for 180 days plus X days. The size of "X" depends on how much more the student learns than the average student — if it's a lot more, then "X" will be a large number, and if it's a small amount more, "X" will be a small number.

06

The same is true for students who do not learn as much as the average student. Instead of adding to the 180-days-of-learning average, we subtract from that base to reflect the smaller-than-average advances that those students realize. In these cases, the difference leads to numbers such a "165 days of learning" or "152 days of learning". Against the average standard of 180 days, these smaller days show that students learned as if they had only attended school for 180 days minus X days during the school year.

Overall Houston Results

	READING		MATH	
	Standard Deviation	Days of Learning	Standard Deviation	Days of Learning
Houston Overall 2015-16	0.00	-1	-0.02*	-13*
Houston Overall 2016-17	0.04**	25**	0.10**	56**
Houston Overall 2017-18	0.00	-2	0.05**	28**

Significant at $p < 0.05$ *

Significant at $p < 0.01$ **



Houston School Sectors Compared to State Average

	READING		MATH	
	Standard Deviation	Days of Learning	Standard Deviation	Days of Learning
Charter Schools 2015-16	0.07**	41**	0.05*	26*
Charter Schools 2016-17	0.09**	55**	0.14**	80**
Charter Schools 2017-18	0.07**	43**	0.15**	88**
Magnet Schools 2015-16	0.14**	79**	0.03	18
Magnet Schools 2016-17	0.22**	131**	0.12	72
Magnet Schools 2017-18	0.12**	70**	0.03	14
Other District Schools 2015-16	-0.01*	-9*	-0.03**	-19**
Other District Schools 2016-17	0.03**	18**	0.09**	53**
Other District Schools 2017-18	-0.02*	-11*	0.04**	20**

Significant at $p < 0.05^*$

Significant at $p < 0.01^{**}$

Comparison of School Sectors within Houston

	READING		MATH	
	Standard Deviation	Days of Learning	Standard Deviation	Days of Learning
Charter Schools vs. Other District Schools 2015-16	0.08**	49**	0.08**	44**
Charter Schools vs. Other District Schools 2016-17	0.06**	36**	0.05*	27*
Charter Schools vs. Other District Schools 2017-18	0.09**	53**	0.12**	67**
Magnet Schools vs. Other District Schools 2015-16	0.15**	87**	0.06	37
Magnet Schools vs. Other District Schools 2016-17	0.19**	112**	0.03	19
Magnet Schools vs. Other District Schools 2017-18	0.14**	80**	-0.01	-6

Significant at $p < 0.05^*$

Significant at $p < 0.01^{**}$



○ Charter Subsector Analysis

	READING		MATH	
	Standard Deviation	Days of Learning	Standard Deviation	Days of Learning
Houston CMOs vs. State Average	0.07**	41**	0.13**	77**
Houston Independent Charters vs. State Average	0.08**	48**	0.22**	128**
Houston CMOs vs. Houston Independent Charters	-0.01	-7	-0.09	-51

Significant at $p < 0.05$ *

Significant at $p < 0.01$ **



○ Student Subgroup Analysis > Black Students

READING		MATH	
Standard Deviation	Days of Learning	Standard Deviation	Days of Learning

Compared with Statewide Average of Black Students

Houston Black Students Overall	-0.01	-6	0.03*	17*
Houston Charter School Black Students	0.06**	36**	0.10**	59**
Houston Magnet School Black Students	0.15**	90**	0.07	42
Houston Other District School Black Students	-0.02**	-14**	0.02	11

Compared with Black Students in Other District Schools in Houston

Houston Charter School Black Students	0.09**	50**	0.08**	47**
Houston Magnet School Black Students	0.18**	104**	0.05	31

Significant at $p < 0.05^*$

Significant at $p < 0.01^{**}$

○ Student Subgroup Analysis > Hispanic Students

READING		MATH	
Standard Deviation	Days of Learning	Standard Deviation	Days of Learning

Compared with Statewide Average of Hispanic Students

Houston Hispanic Students Overall	-0.01	-6	0.05**	27**
Houston Charter School Hispanic Students	0.08**	49**	0.17**	99**
Houston Magnet School Hispanic Students	0.09*	53*	-0.01	-5
Houston Other District School Hispanic Students	-0.03**	-17**	0.03*	15*

Compared with Hispanic Students in Other District Schools in Houston

Houston Charter School Hispanic Students	0.11**	66**	0.14**	83**
Houston Magnet School Hispanic Students	0.12**	70**	-0.03	-21

Significant at $p < 0.05^*$

Significant at $p < 0.01^{**}$

○ Student Subgroup Analysis > Students in Poverty

READING		MATH	
Standard Deviation	Days of Learning	Standard Deviation	Days of Learning

Compared with Statewide Average of Students in Poverty

Houston Students in Poverty Overall	0.00	-1	0.05**	30**
Houston Charter School Students in Poverty	0.09**	52**	0.16**	95**
Houston Magnet School Students in Poverty	0.11**	64**	0.02	14
Houston Other District School Students in Poverty	-0.02*	-11*	0.04**	20**

Compared with Students in Poverty in Other District Schools in Houston

Houston Charter School Students in Poverty	0.11**	62**	0.13**	74**
Houston Magnet School Students in Poverty	0.13**	74**	-0.01	-7

Significant at $p < 0.05^*$

Significant at $p < 0.01^{**}$

○ Student Subgroup Analysis > ELL Students

READING		MATH	
Standard Deviation	Days of Learning	Standard Deviation	Days of Learning

Compared with Statewide Average of ELL Students

Houston ELL Students Overall	-0.06**	-38**	0.01	7
Houston Charter School ELL Students	0.03	20	0.11**	64**
Houston Magnet School ELL Students	-0.10	-61	-0.12*	-70*
Houston Other District School ELL Students	-0.08**	-47**	0.00	-2

Compared with ELL Students in Other District Schools in Houston

Houston Charter School ELL Students	0.11**	66**	0.11**	66**
Houston Magnet School ELL Students	-0.02	-15	-0.12*	-68*

Significant at $p < 0.05^*$

Significant at $p < 0.01^{**}$

○ Student Subgroup Analysis > Special Ed Students

READING		MATH	
Standard Deviation	Days of Learning	Standard Deviation	Days of Learning

Compared with Statewide Average of Special Ed Students

Houston Special Ed Students Overall	0.00	0	0.04*	21*
Houston Charter School Special Ed Students	0.11**	63**	0.12**	72**
Houston Magnet School Special Ed Students	0.08	47	-0.14	-80
Houston Other District School Special Ed Students	-0.01	-7	0.03*	18*

Compared with Special Ed Students in Other District Schools in Houston

Houston Charter School Special Ed Students	0.12**	70**	0.09**	54**
Houston Magnet School Special Ed Students	0.09	53	-0.17	-98

Significant at $p < 0.05^*$

Significant at $p < 0.01^{**}$

○ Student Subgroup Analysis > Male Students

READING		MATH	
Standard Deviation	Days of Learning	Standard Deviation	Days of Learning

Compared with Statewide Average of Male Students

Houston Male Students Overall	0.00	0	0.05**	27**
Houston Charter School Male Students	0.08**	46**	0.15**	86**
Houston Magnet School Male Students	0.09*	51*	0.02	11
Houston Other District School Male Students	-0.01	-8	0.03**	20**

Compared with Male Students in Other District Schools in Houston

Houston Charter School Male Students	0.09**	54**	0.11**	66**
Houston Magnet School Male Students	0.10*	59*	-0.02	-9

Significant at $p < 0.05^*$

Significant at $p < 0.01^{**}$

○ Student Subgroup Analysis > Female Students

READING		MATH	
Standard Deviation	Days of Learning	Standard Deviation	Days of Learning

Compared with Statewide Average of Female Students

Houston Female Students Overall	-0.01	-4	0.05**	29**
Houston Charter School Female Students	0.07**	40**	0.15**	90**
Houston Magnet School Female Students	0.15**	87**	0.03	17
Houston Other District School Female Students	-0.02**	-13**	0.04**	21**

Compared with Female Students in Other District Schools in Houston

Houston Charter School Female Students	0.09**	52**	0.12**	69**
Houston Magnet School Female Students	0.17**	99**	-0.01	-5

Significant at $p < 0.05^*$

Significant at $p < 0.01^{**}$

THANK YOU

