

# City Study 2022:

ST. LOUIS

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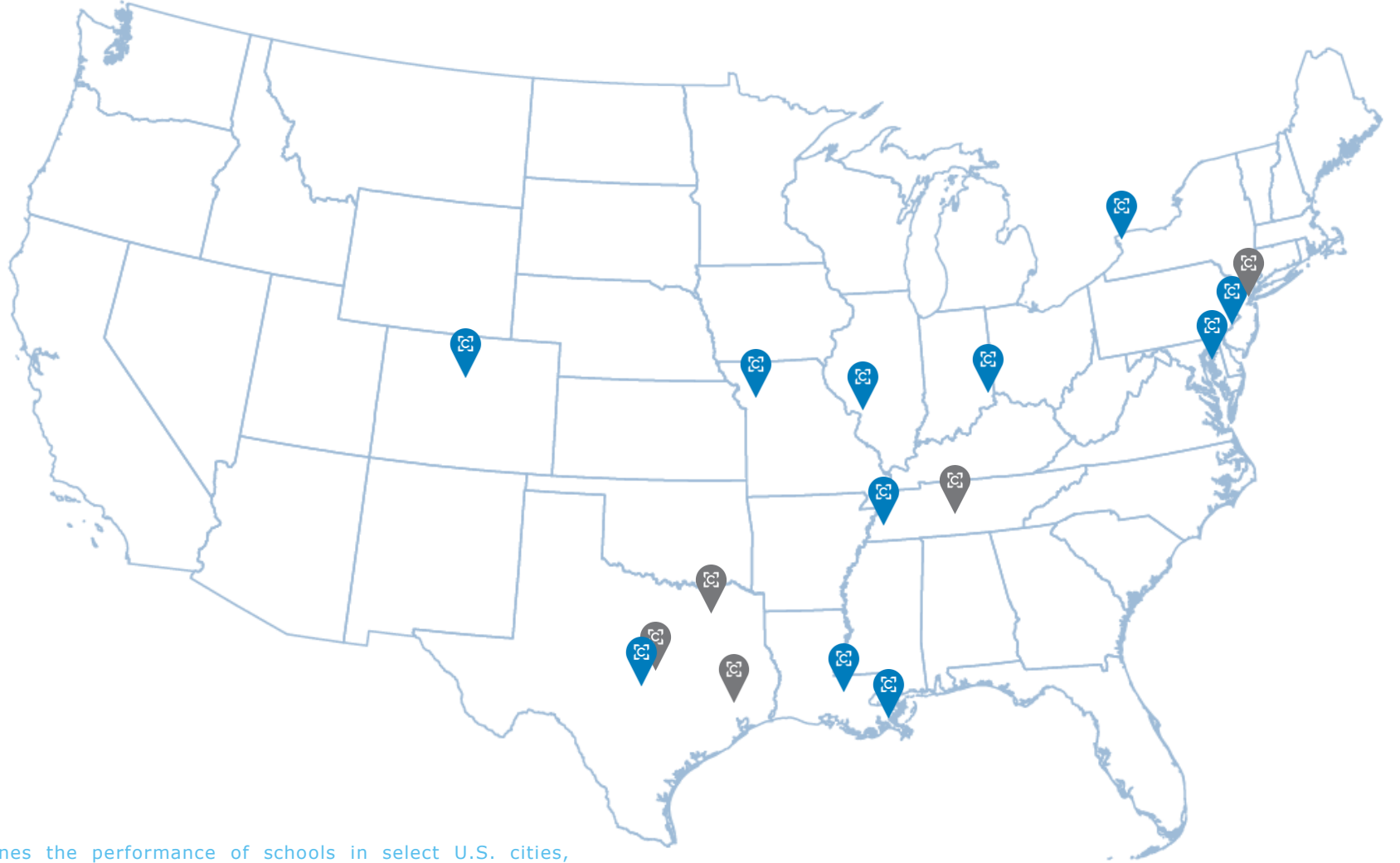


○ REPORT OVERVIEW

01



# About The City Studies Project



The City Studies project examines the performance of schools in select U.S. cities, including St. Louis. 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 ST. LOUIS USING DATA FROM THE SCHOOL YEARS 2015-16 THROUGH 2018-19. THERE ARE THREE LEVELS OF ANALYSIS.

01

**Overall performance** in St. Louis schools over two years.

02

**Performance for St. Louis charter schools, St. Louis magnet schools and the rest of St. Louis Public schools** over two years.

03

Performance in the 2018-2019 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 St. Louis 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 St. Louis are then compared to that of similar traditional public school (district school) students within St. Louis.



# ○ 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.

## SPECIAL HANDLING OF ST. LOUIS GROWTH SCORES FOR 2017-18

For the period ending in Spring 2018, we use student test scores from the 2015-16 school year as starting scores to calculate student growth because the Missouri test score data for 2016-17 are incomplete.





○ RESEARCH FINDINGS

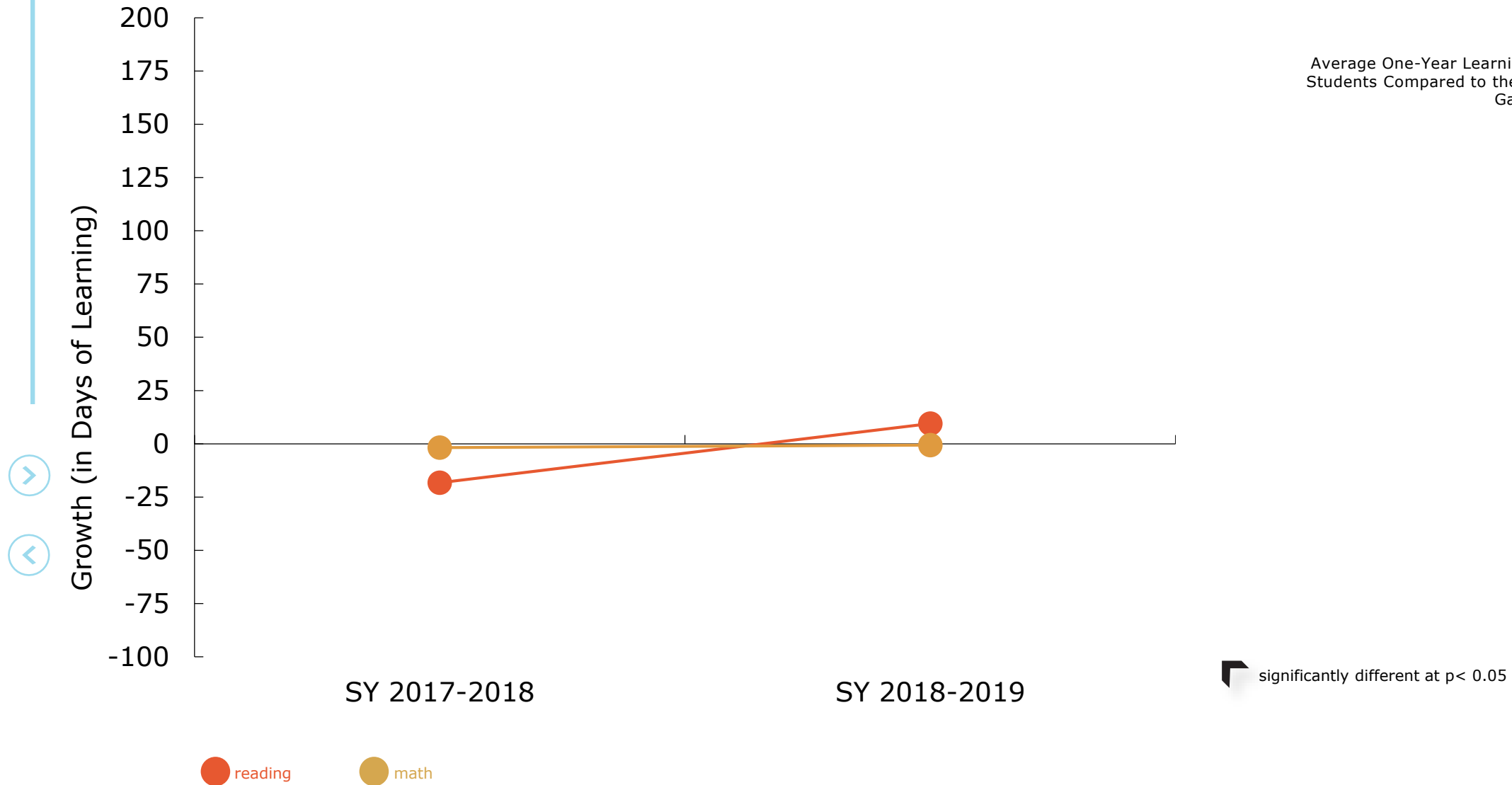
02





# Research Findings > Overall St. Louis Results > Reading & Math

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

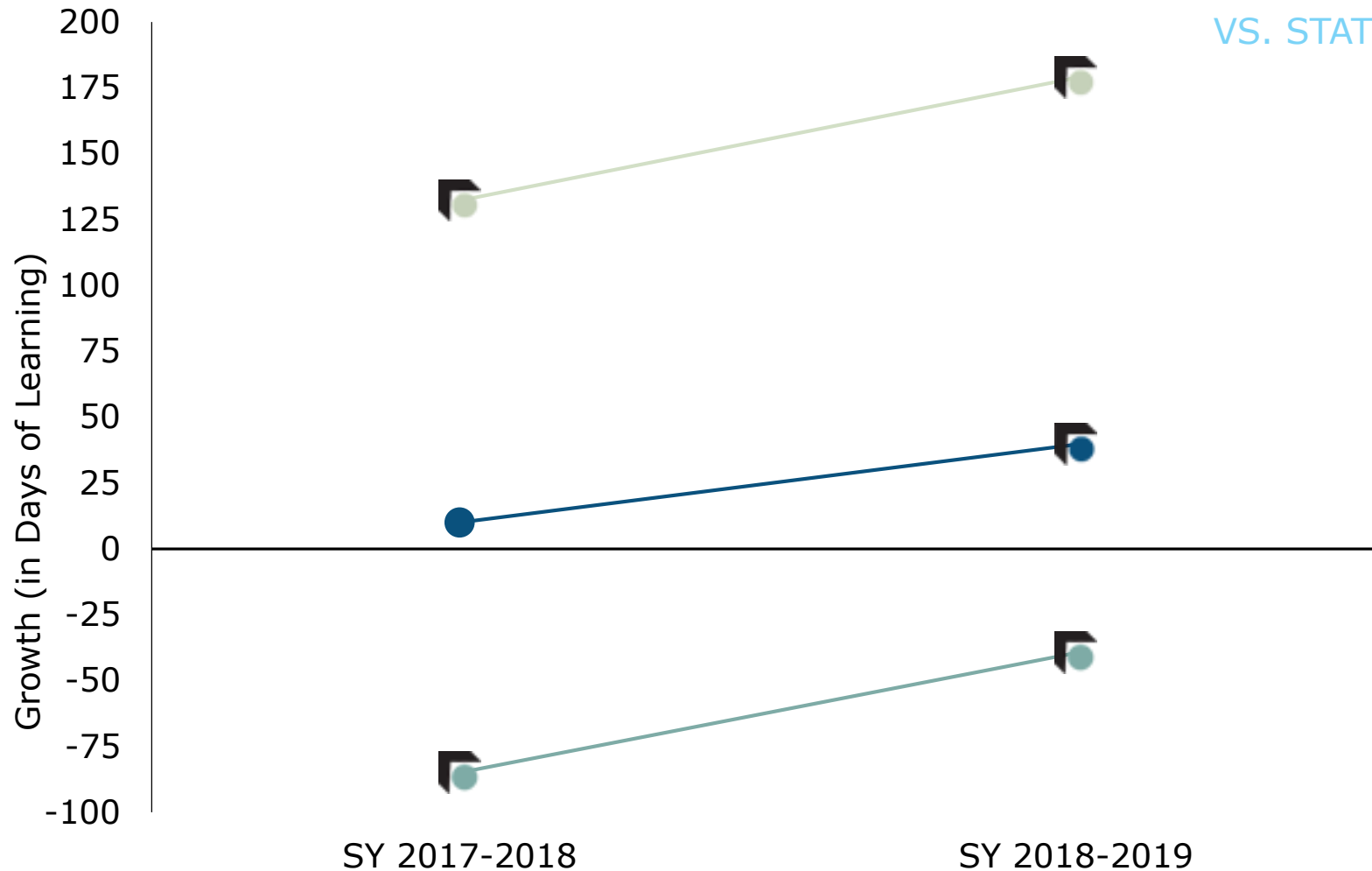


# Research Findings > Sector Analysis

## > Reading

### VS. STATE & COMPARISON WITHIN ST. LOUIS

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



Tests of Differences		
Reading	'17-'18	'18-'19
Charter vs. District	⌞	⌞
Magnet vs. District	⌞	⌞
Charter vs. Magnet	⌞	⌞

⌞ significantly different at  $p < 0.05$

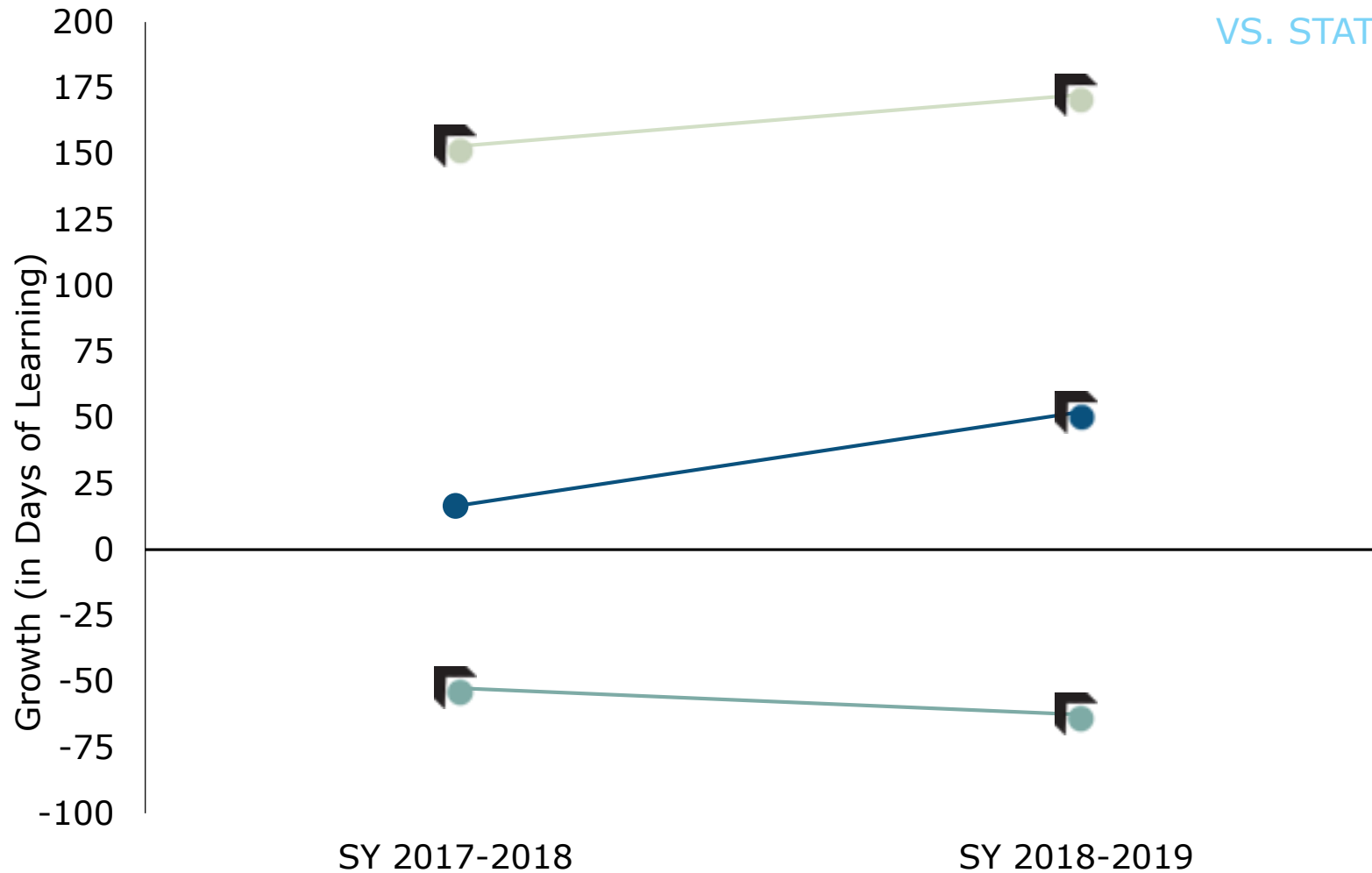
● charter ● magnet ● district

# Research Findings > Sector Analysis

## > Math

### VS. STATE & COMPARISON WITHIN ST. LOUIS

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



Tests of Differences		
Math	'17-'18	'18-'19
Charter vs. District	⌞	⌞
Magnet vs. District	⌞	⌞
Charter vs. Magnet	⌞	⌞

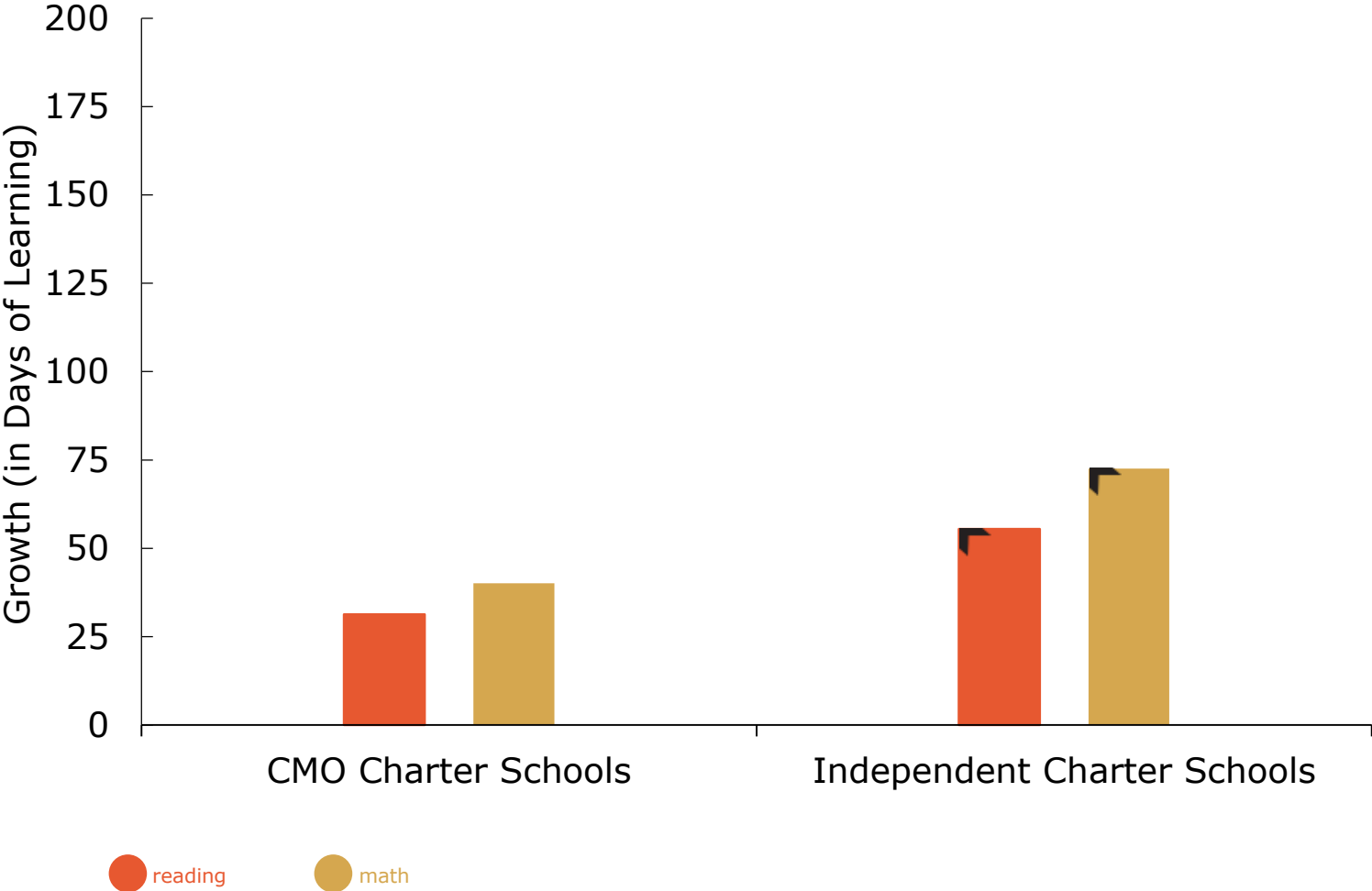
⌞ significantly different at  $p < 0.05$

● charter    ● magnet    ● district

# Research Findings > Charter Subsector Analysis

## > vs. state & comparison within St. Louis

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



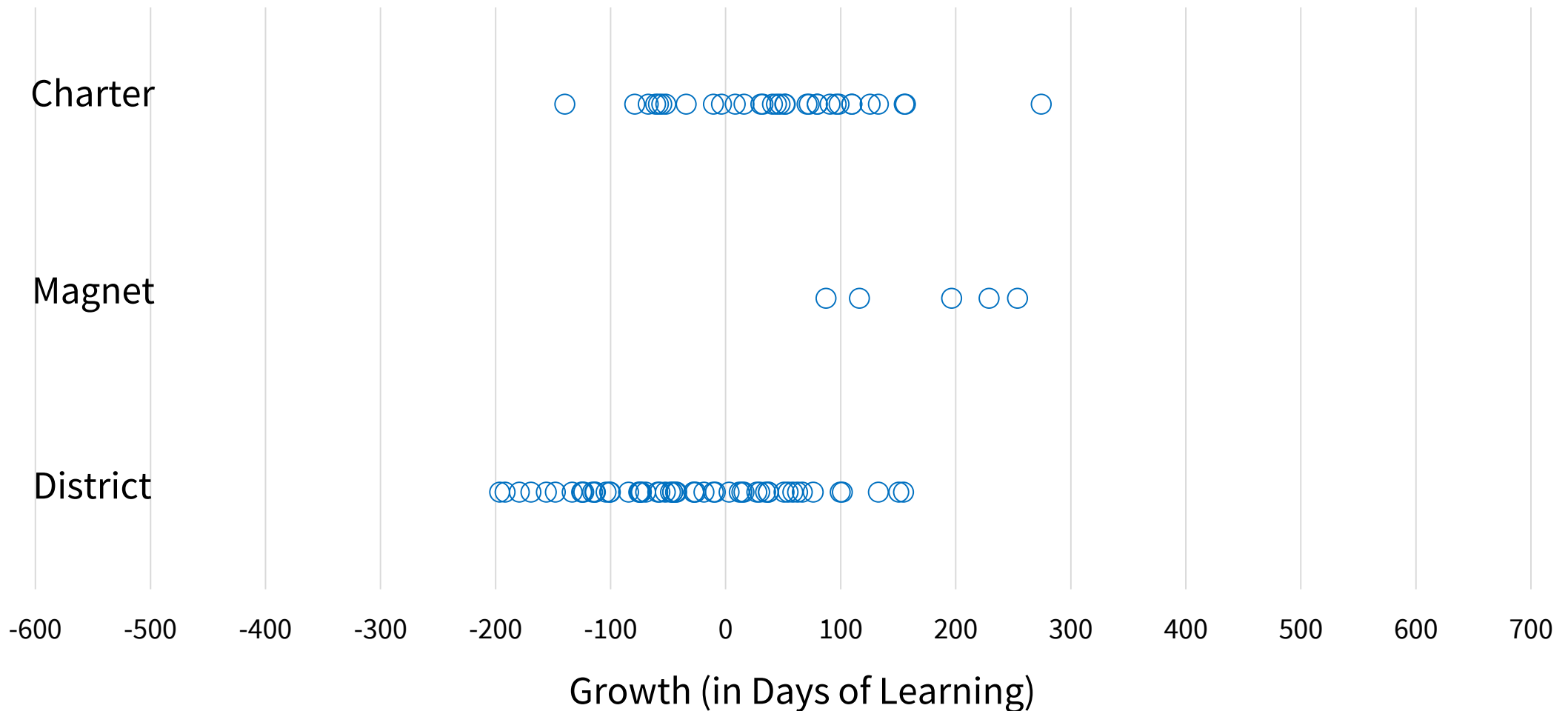
### Tests of Differences

**Reading** sig  
 CMOs vs Independent Charter Schools

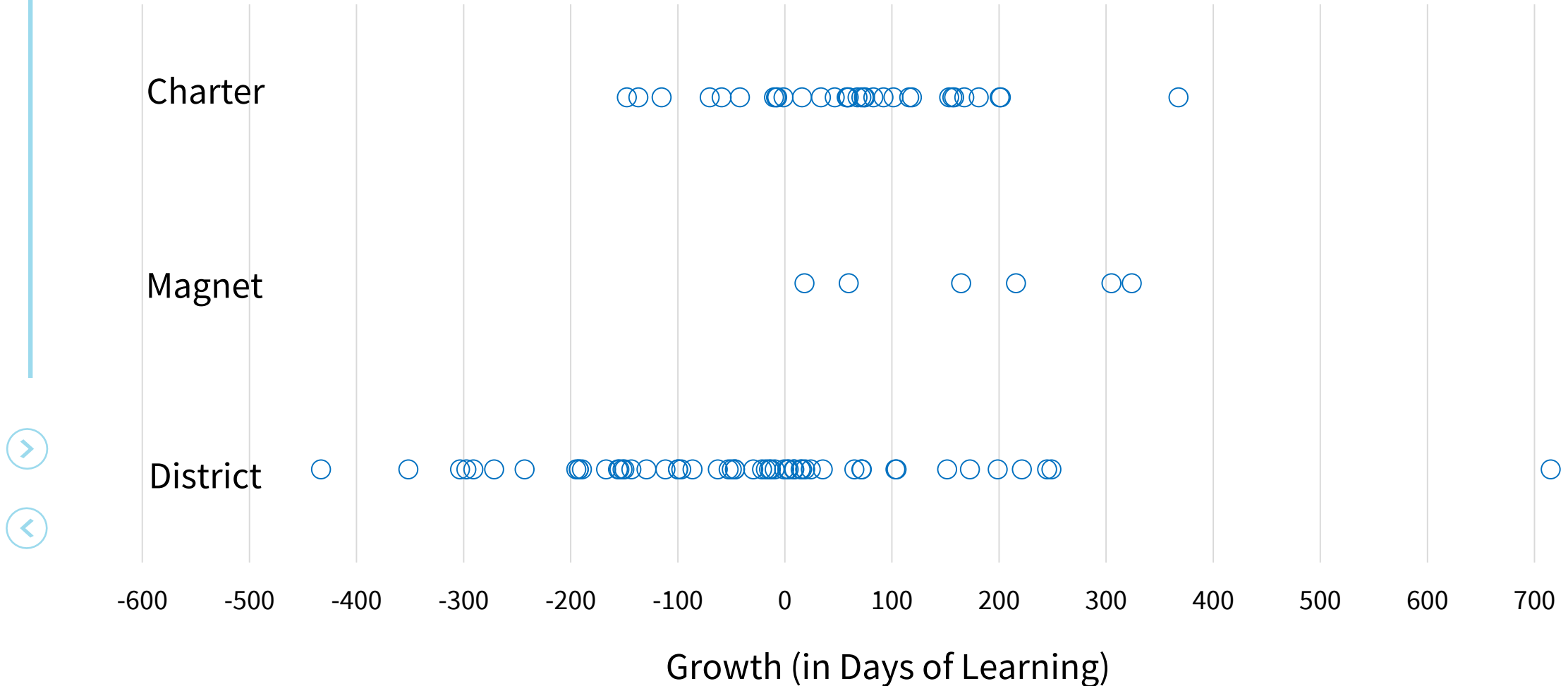
**Math**  
 CMOs vs Independent Charter Schools

significantly different at  $p < 0.05$

# Research Findings > School-Level Performance by Sector > Reading



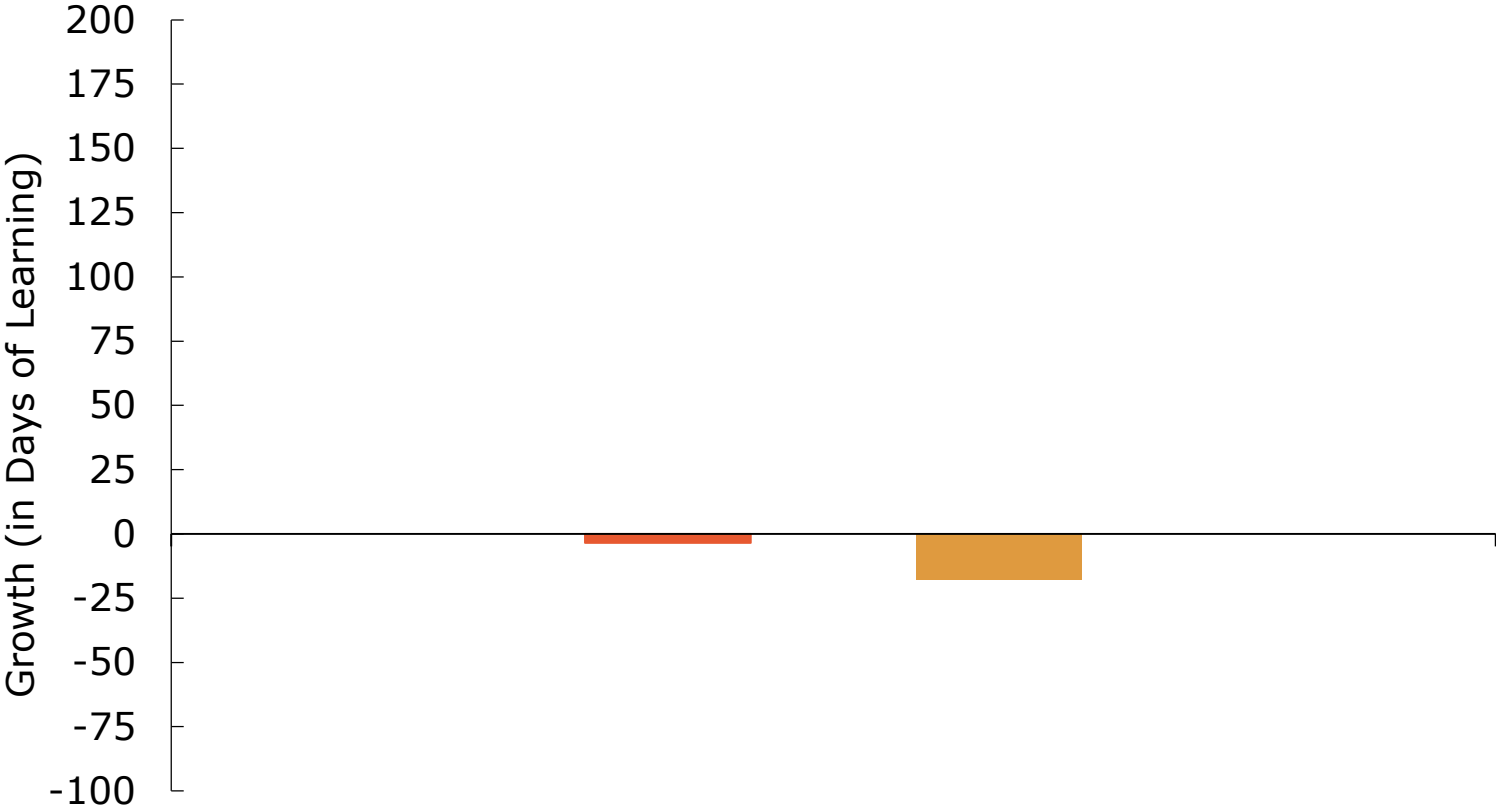
# Research Findings > School-Level Performance by Sector > Math



# Research Findings > Student Subgroup Analysis > Black Students

ALL VS. STATE

Learning Gains for All St. Louis Black Students Compared to the Average Learning Gains of Black Students Statewide, by Subject



St. Louis Black Students

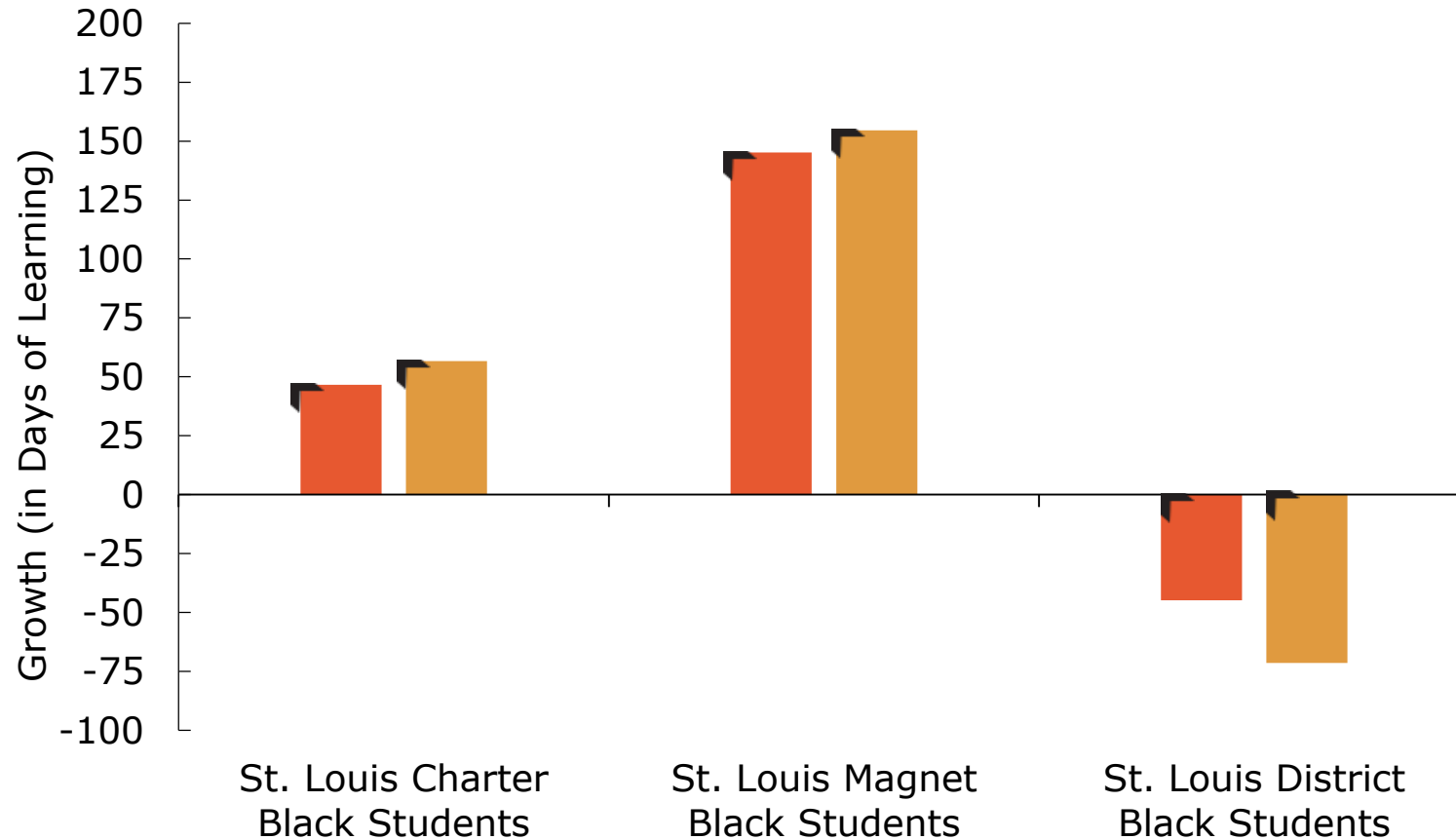
significantly different at  $p < 0.05$

reading math

# Research Findings > Student Subgroup Analysis > Black Students

VS. STATE BY SECTOR & COMPARISON WITHIN ST. LOUIS

Learning Gains for Black Students in St. Louis Charter Schools, Black Students in St. Louis Magnet Schools, and Black Students in St. Louis 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

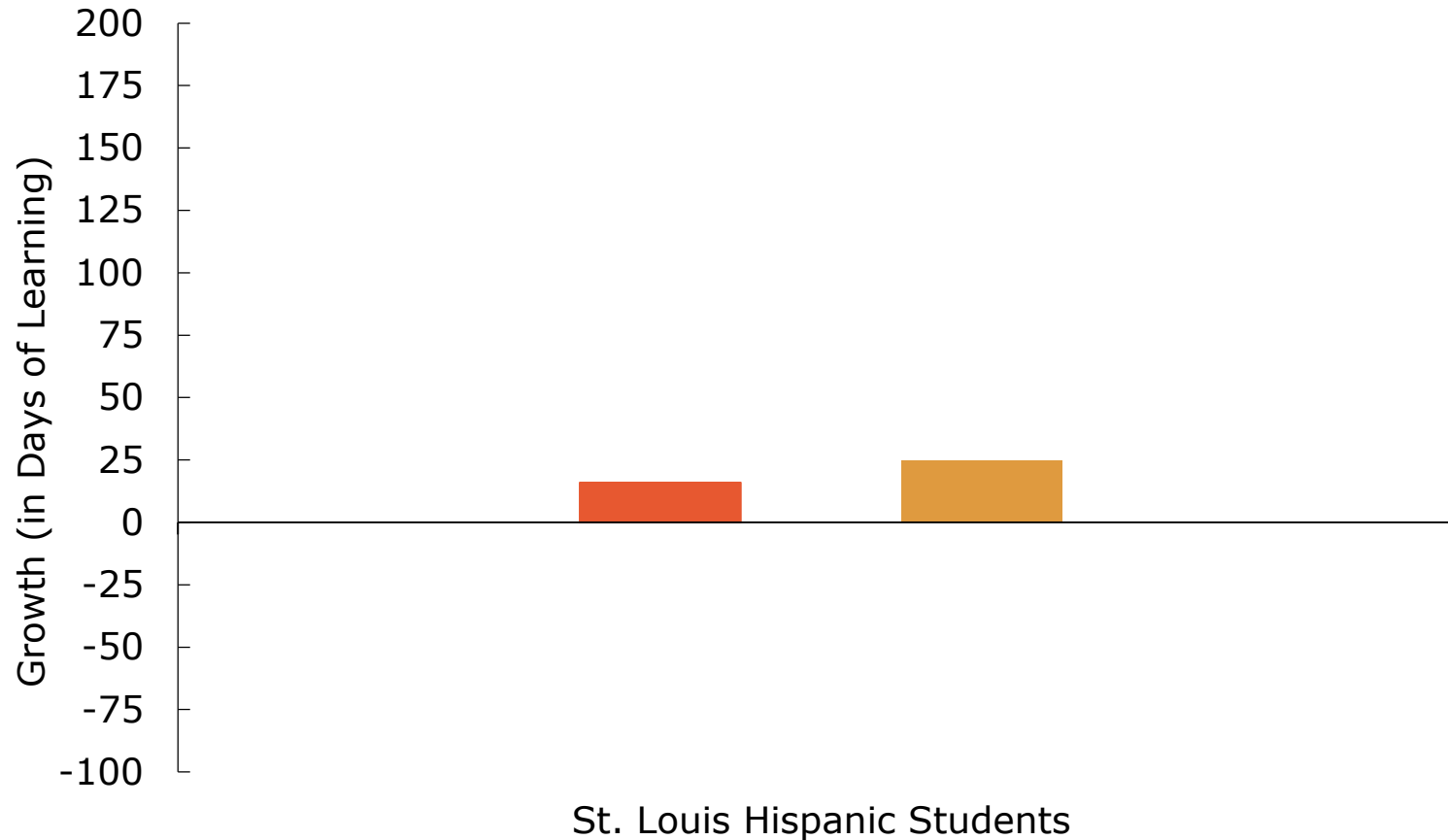
significantly different at  $p < 0.05$



# Research Findings > Student Subgroup Analysis > Hispanic Students

ALL VS. STATE

Learning Gains for All St. Louis Hispanic Students  
Compared to the Average Learning Gains of Hispanic  
Students Statewide, by Subject



significantly different at  $p < 0.05$

reading

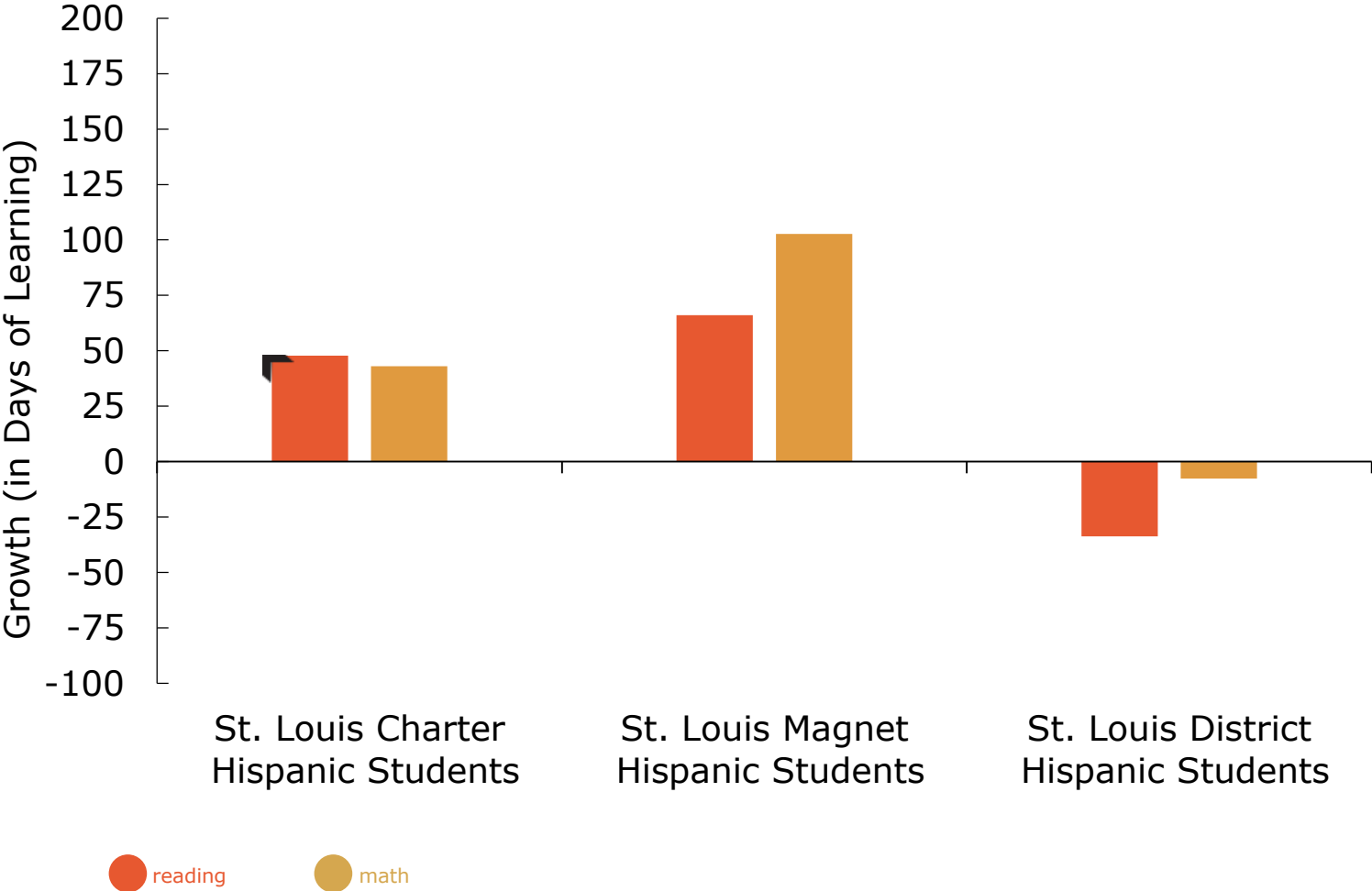
math

# Research Findings > Student Subgroup Analysis

## > Hispanic Students

VS. STATE BY SECTOR & COMPARISON WITHIN ST. LOUIS

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



### Tests of Differences

**Reading** sig  
 Charter Hispanic vs. District Hispanic  
 Magnet Hispanic vs. District Hispanic

**Math**  
 Charter Hispanic vs. District Hispanic  
 Magnet Hispanic vs. District Hispanic

significantly different at  $p < 0.05$

# Research Findings > Student Subgroup Analysis > Students in Poverty

ALL VS. STATE

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



significantly different at  $p < 0.05$

reading

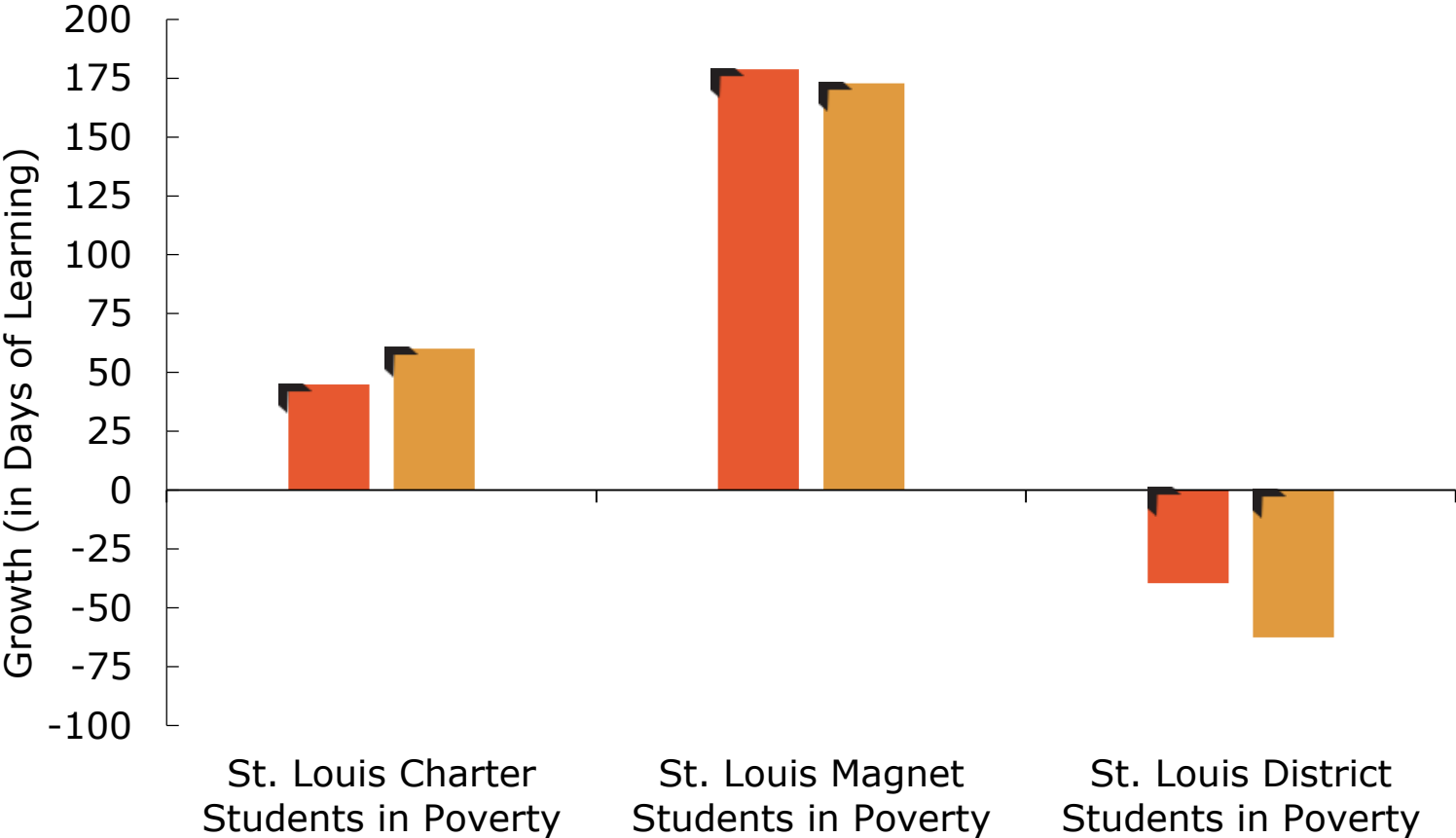
math

# Research Findings > Student Subgroup Analysis

## > Students in Poverty

VS. STATE BY SECTOR & COMPARISON WITHIN ST. LOUIS

Learning Gains for St. Louis Charter School Students in Poverty, St. Louis Magnet School Students in Poverty, and St. Louis 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	sig

↙ significantly different at  $p < 0.05$

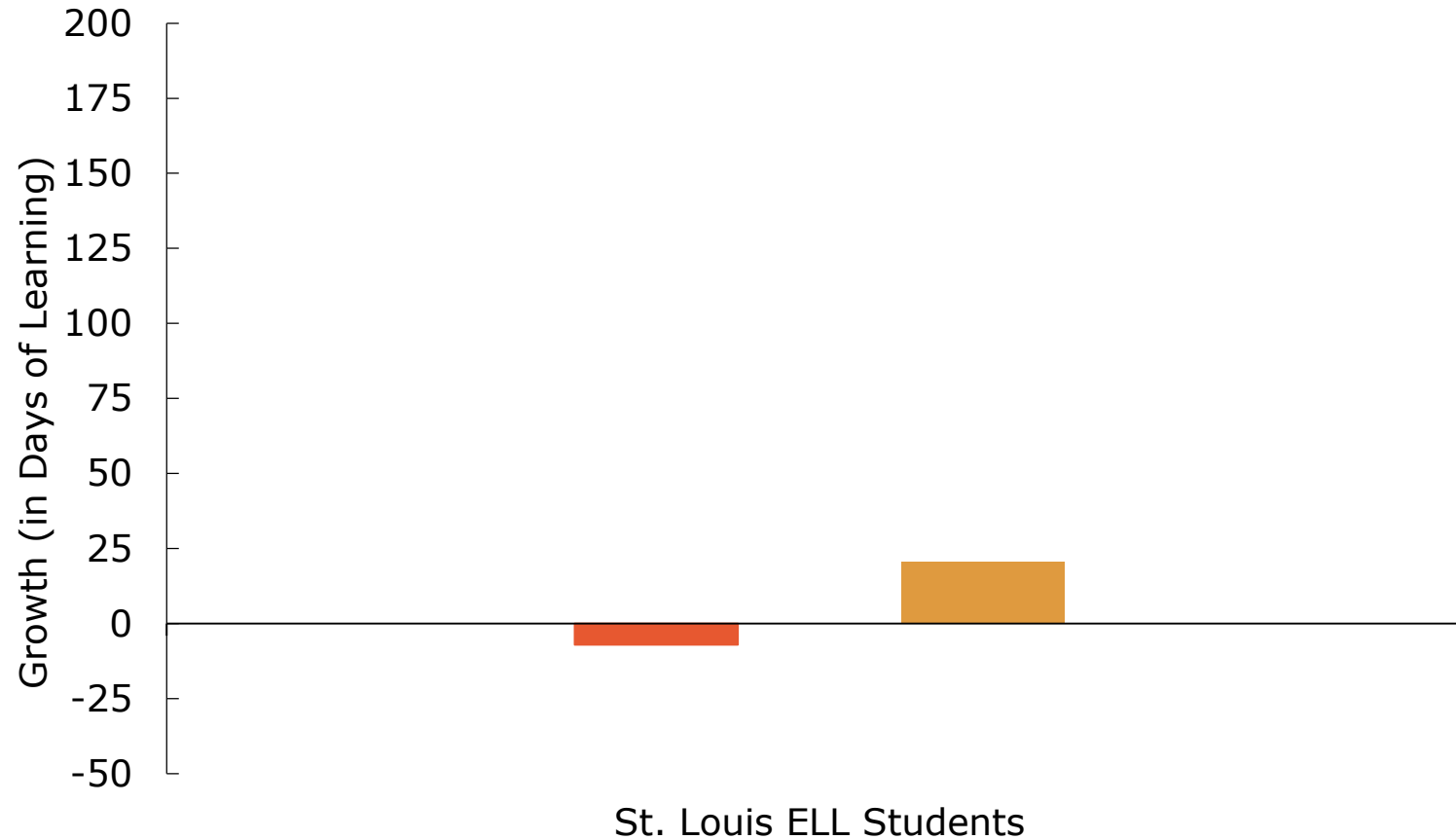
● reading ● math

# Research Findings > Student Subgroup Analysis

## > ELL Students

ALL VS. STATE

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



significantly different at  $p < 0.05$

reading

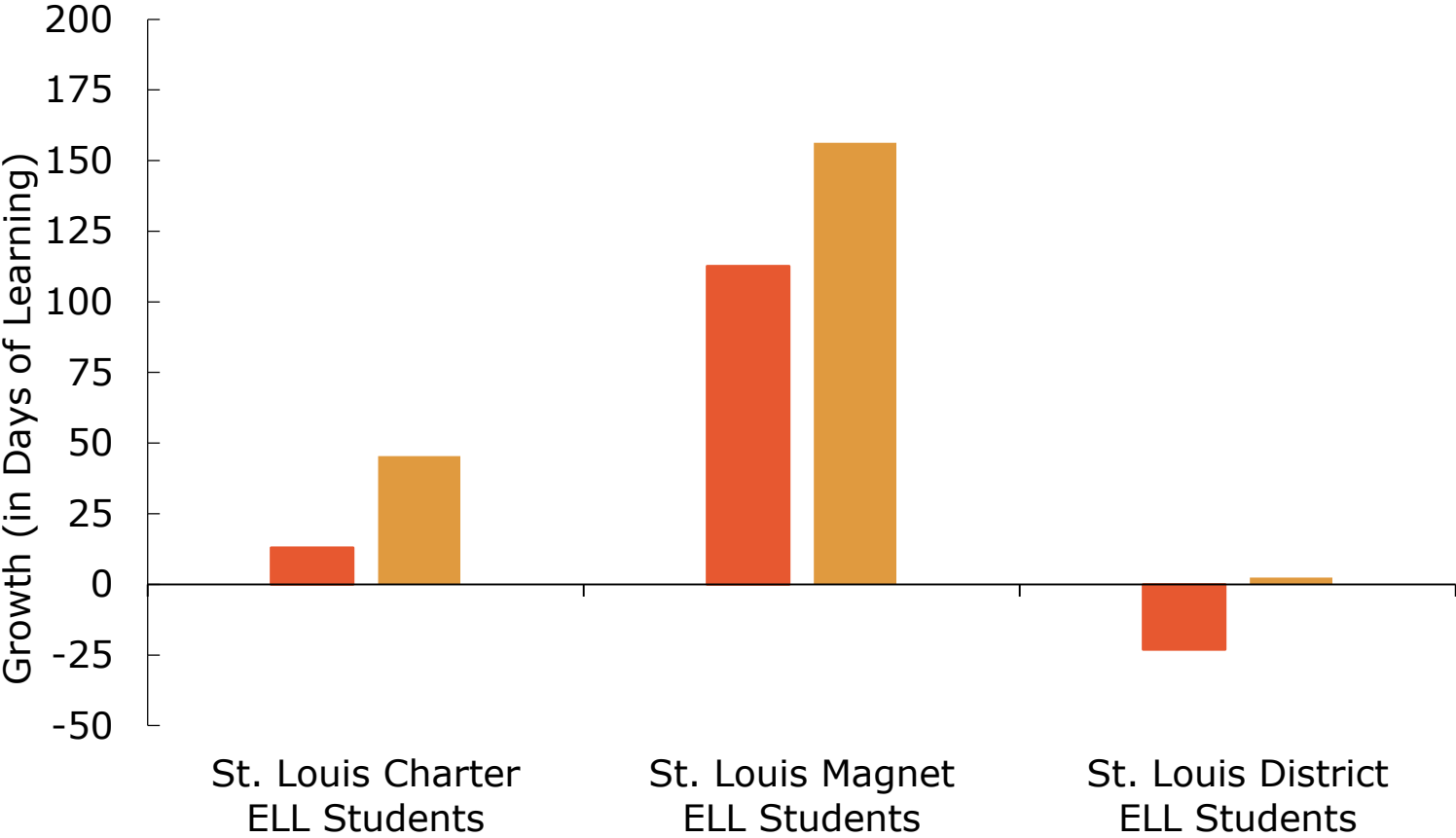
math

# Research Findings > Student Subgroup Analysis

## > ELL Students

### VS. STATE BY SECTOR & COMPARISON WITHIN ST. LOUIS

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



#### Tests of Differences

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

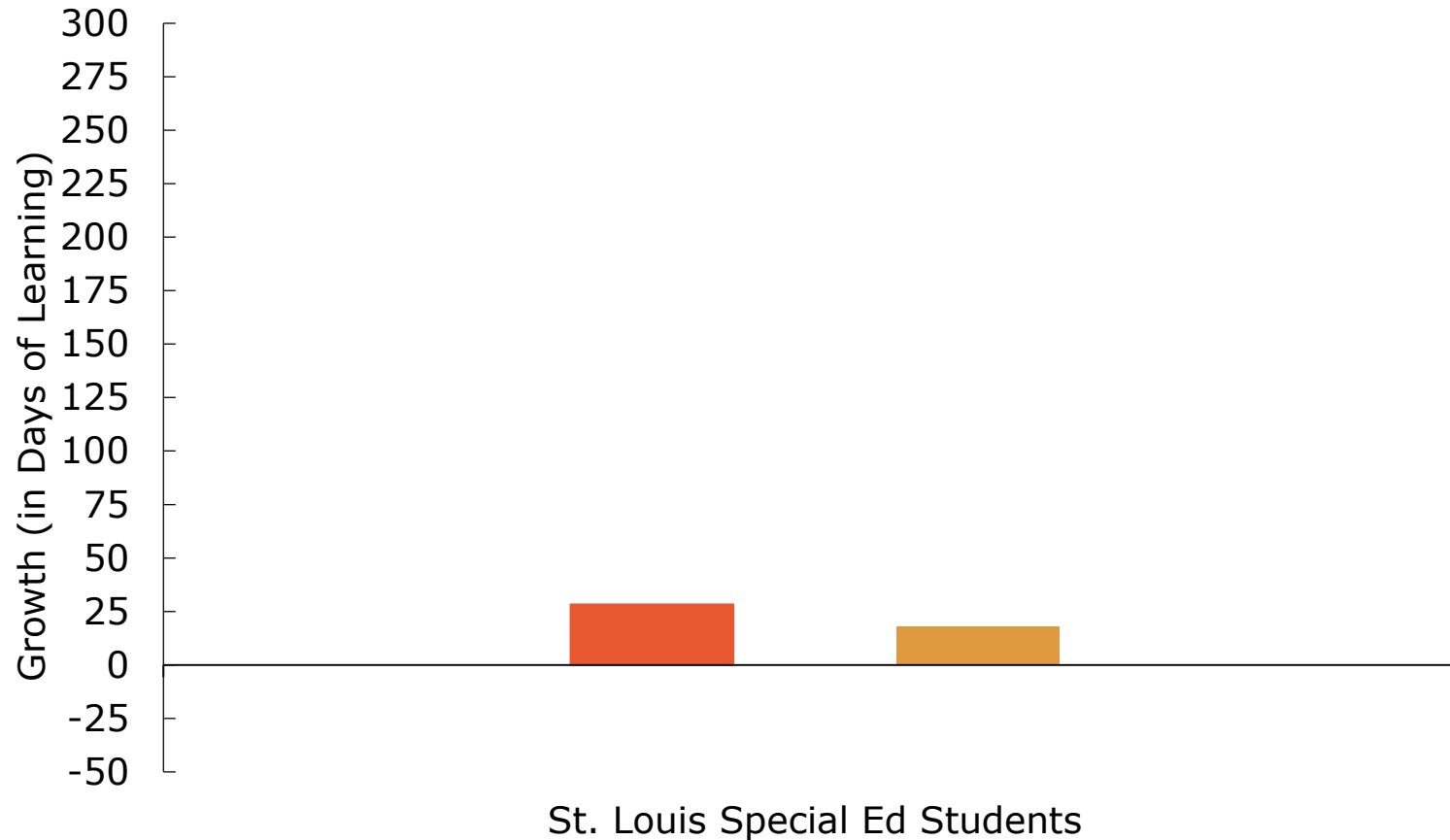
significantly different at  $p < 0.05$

● reading ● math

# Research Findings > Student Subgroup Analysis > Special Ed Students

ALL VS. STATE

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



significantly different at  $p < 0.05$

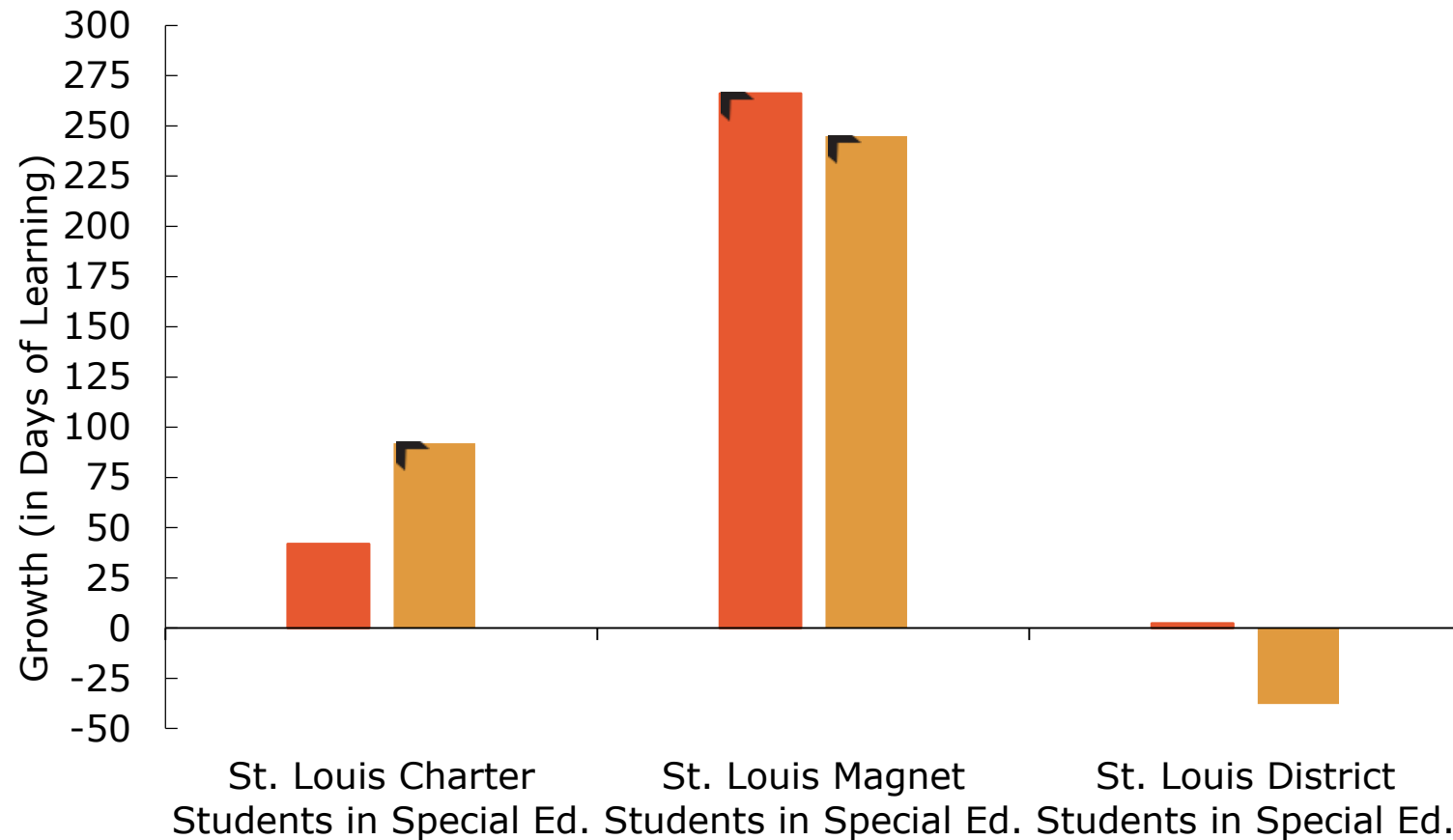
reading

math

# Research Findings > Student Subgroup Analysis > Special Ed Students

VS. STATE BY SECTOR & COMPARISON WITHIN ST. LOUIS

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



### Tests of Differences

Subject	Comparison	Significant Difference (p < 0.05)
Reading	Charter Sped vs. District Sped	No
	Magnet Sped vs. District Sped	Yes
Math	Charter Sped vs. District Sped	No
	Magnet Sped vs. District Sped	Yes

significantly different at p < 0.05

reading math

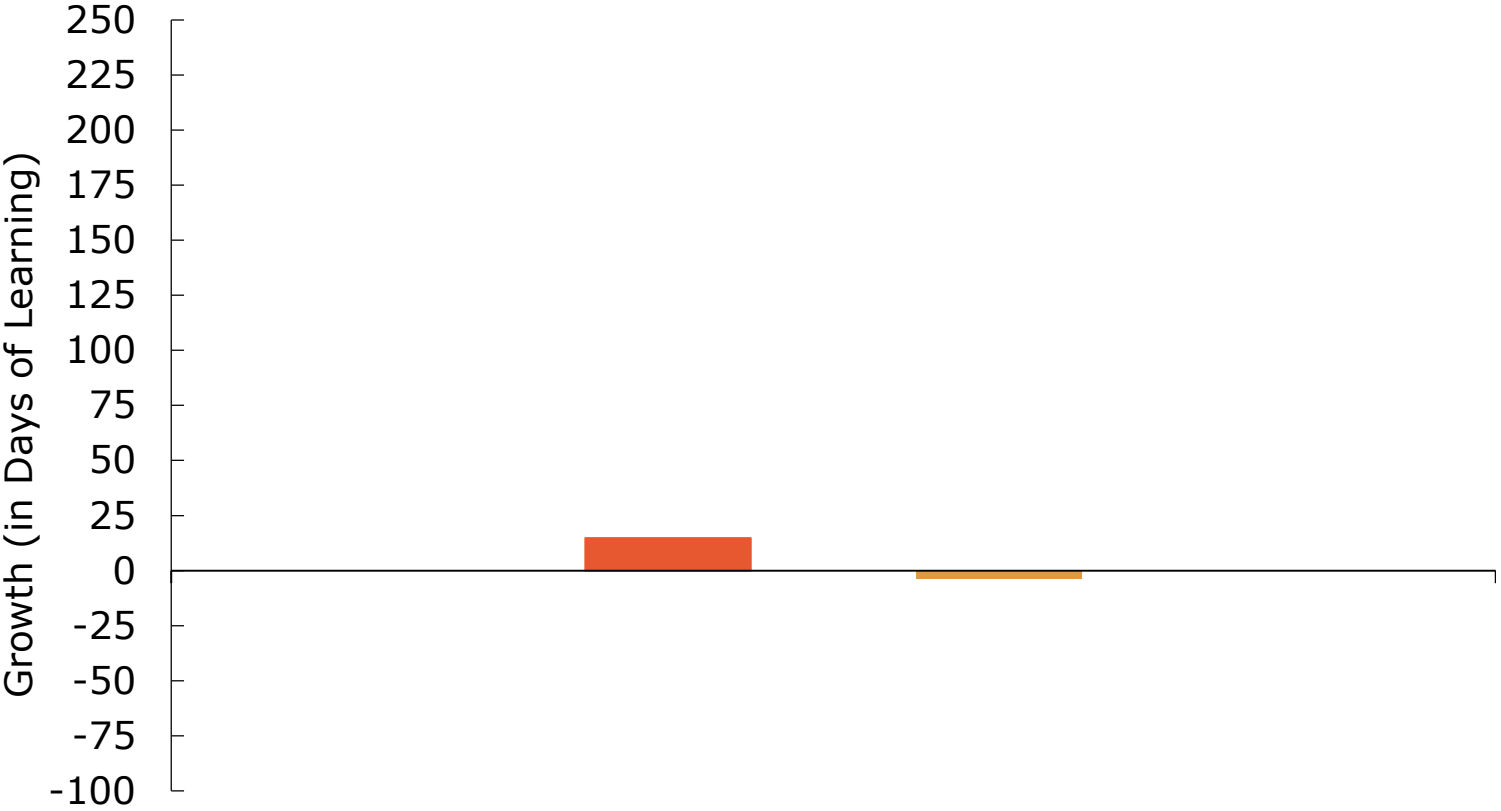


# Research Findings > Student Subgroup Analysis

## > Male Students

ALL VS. STATE

Learning Gains for All St. Louis Male Students  
Compared to the Average Learning Gains of Male  
Students Statewide, by Subject



St. Louis Male Students

significantly different at  $p < 0.05$

reading

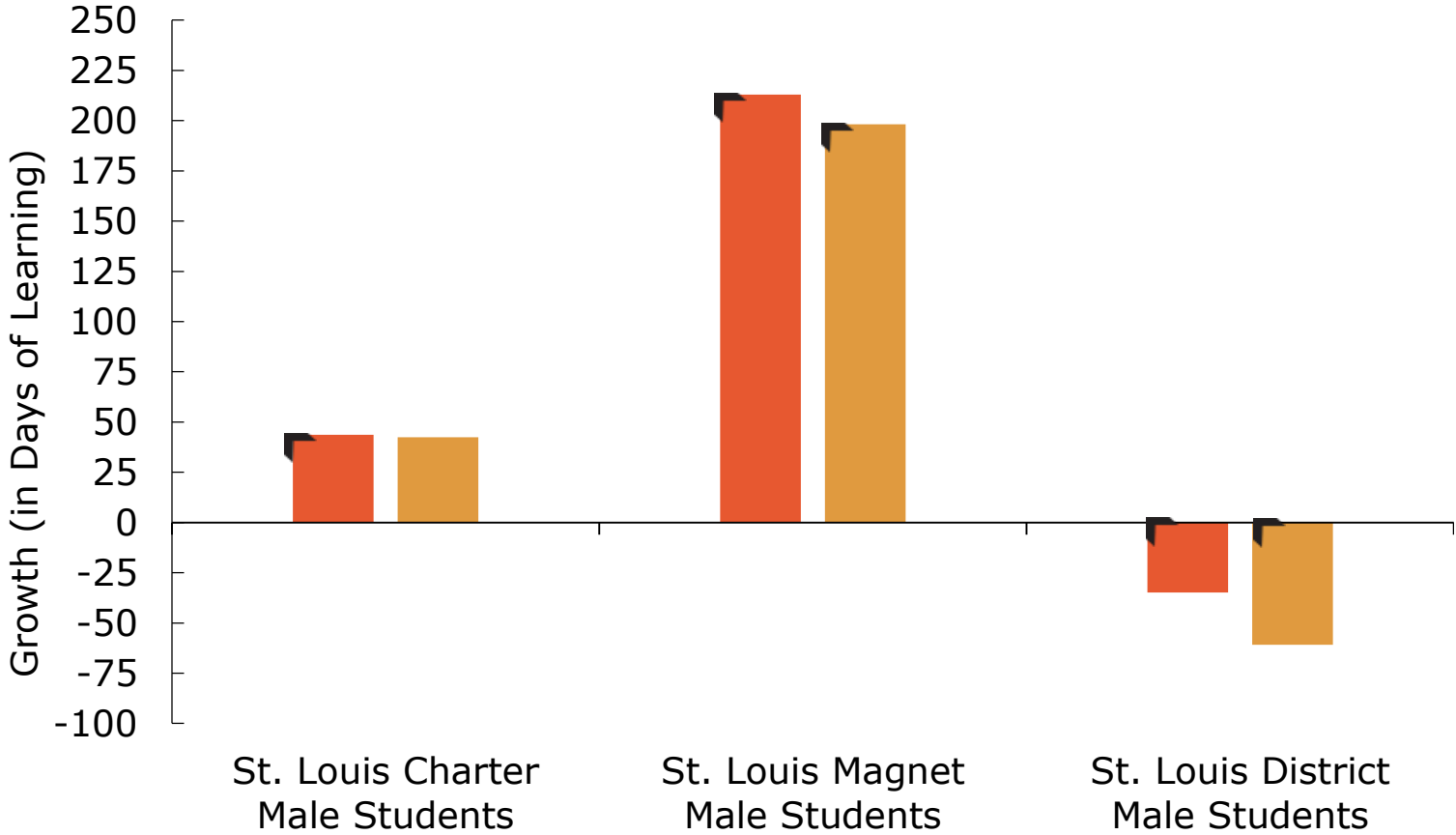
math

# Research Findings > Student Subgroup Analysis

## > Male Students

VS. STATE BY SECTOR & COMPARISON WITHIN ST. LOUIS

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



### Tests of Differences

Subject	Comparison	Significant
Reading	Charter Male vs. District Male	Yes
	Magnet Male vs. District Male	Yes
Math	Charter Male vs. District Male	Yes
	Magnet Male vs. District Male	Yes

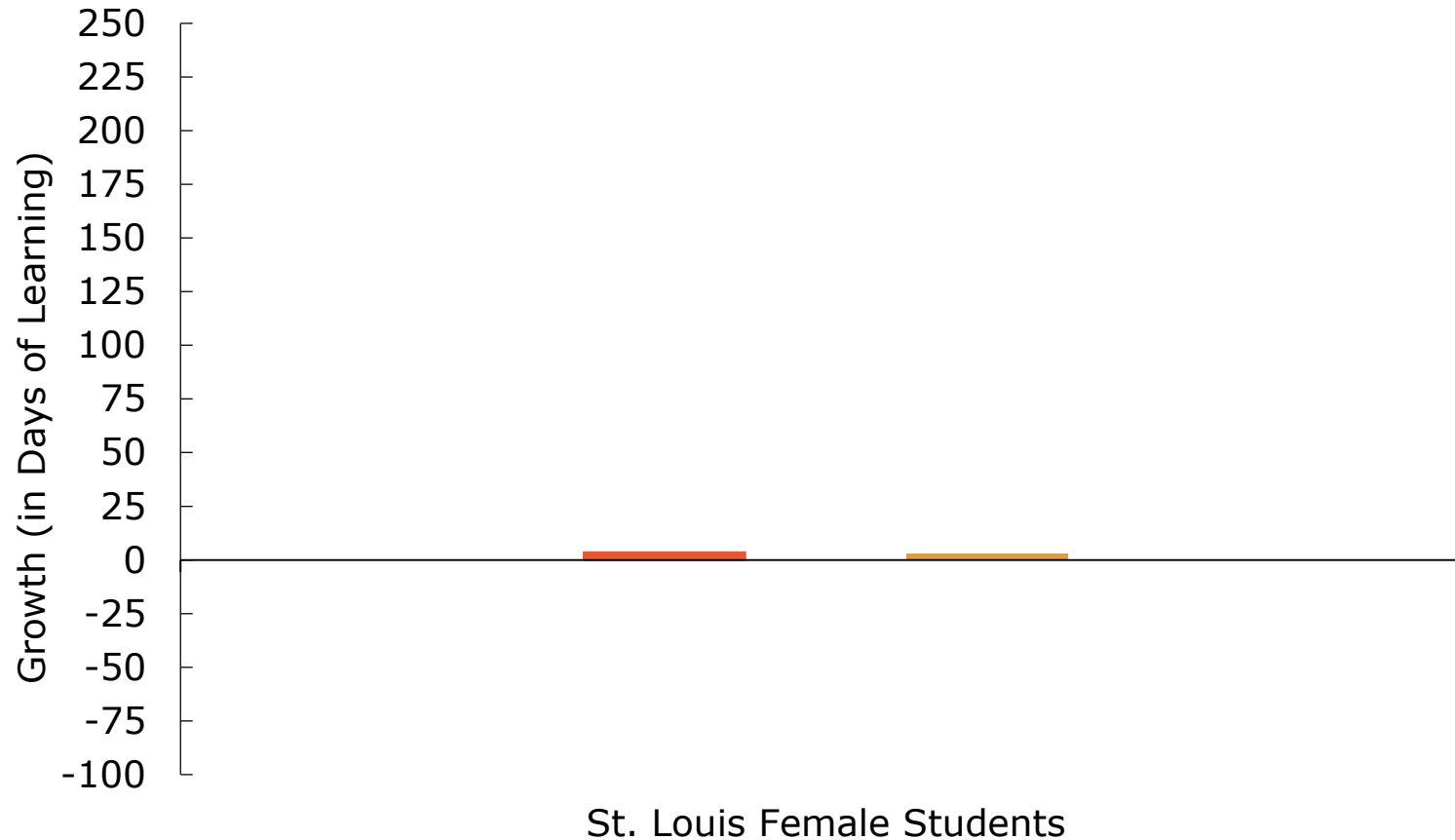
significantly different at  $p < 0.05$

● reading ● math

# Research Findings > Student Subgroup Analysis > Female Students

ALL VS. STATE

Learning Gains for All St. Louis Female Students  
Compared to the Average Learning Gains of Female  
Students Statewide, by Subject



significantly different at  $p < 0.05$

reading

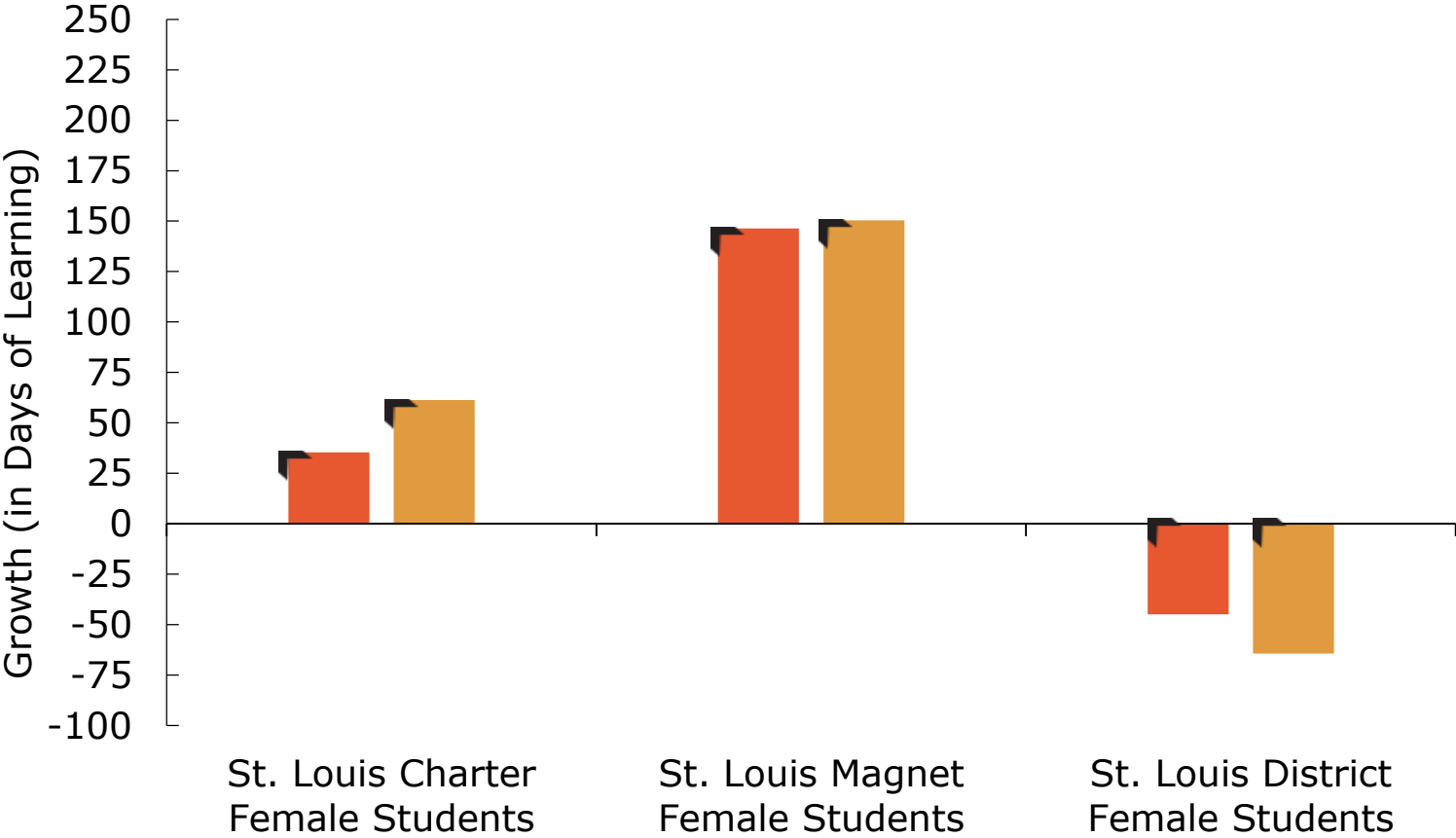
math

# Research Findings > Student Subgroup Analysis

## > Female Students

VS. STATE BY SECTOR & COMPARISON WITHIN ST. LOUIS

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



### Tests of Differences

Subject	Comparison	Significant Difference
Reading	Charter Female vs. District Female	Yes (sig)
	Magnet Female vs. District Female	Yes (sig)
Math	Charter Female vs. District Female	Yes (sig)
	Magnet Female vs. District Female	Yes (sig)

significantly different at  $p < 0.05$

● reading ● math

# ○ Summary of Findings



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





○ APPENDIXES

03



# Acknowledgments



Student-level data were provided by the **Missouri Department of Elementary & Secondary Education.**



**The opportunity trust** assisted CREDO with verifying the list of public schools in St. Louis.



# 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 ST. LOUIS 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 St. Louis from 2015-16 to 2018-19, overall and by sector, is benchmarked to the state average growth, accounting for student characteristics.

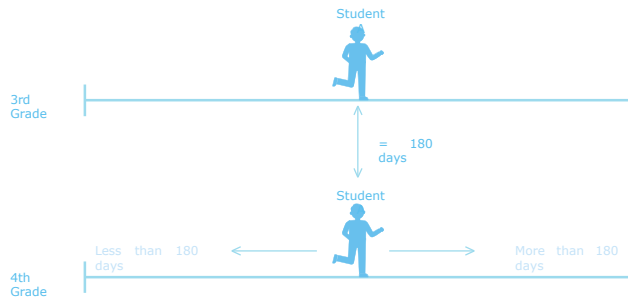
We also explore how one-year growth of St. Louis students for the period ending in Spring 2019 differs by school type, race, poverty status, English language learner status, special education status, and gender.



# 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 St. Louis Results

	READING		MATH	
	Standard Deviation	Days of Learning	Standard Deviation	Days of Learning
St. Louis Overall 2017-18	-0.03	-19	0.00	-2
St. Louis Overall 2018-19	0.02	9	0.00	-1

Significant at  $p < 0.05^*$

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



# St. Louis School Sectors Compared to State Average

	READING		MATH	
	Standard Deviation	Days of Learning	Standard Deviation	Days of Learning
Charter Schools 2017-18	0.02	10	0.03	16
Charter Schools 2018-19	0.07**	39**	0.09**	51**
Magnet Schools 2017-18	0.22**	132**	0.26**	152**
Magnet Schools 2018-19	0.30**	178**	0.29**	172**
Other District Schools 2017-18	-0.14**	-85**	-0.09*	-53*
Other District Schools 2018-19	-0.07**	-40**	-0.11**	-63**

Significant at  $p < 0.05^*$

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



# Comparison of School Sectors within St. Louis

	READING		MATH	
	Standard Deviation	Days of Learning	Standard Deviation	Days of Learning
Charter Schools vs. Other District Schools 2017-18	0.16**	94**	0.12*	69*
Charter Schools vs. Other District Schools 2018-19	0.13**	79**	0.19**	114**
Magnet Schools vs. Other District Schools 2017-18	0.37**	217**	0.35**	205**
Magnet Schools vs. Other District Schools 2018-19	0.37**	218**	0.40**	234**

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
St. Louis CMOs vs. State Average	0.05	31	0.07	40
St. Louis Independent Charters vs. State Average	0.09**	55**	0.12**	72**
St. Louis CMOs vs. St. Louis Independent Charters	-0.04	-25	-0.06	-33

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

St. Louis Black Students Overall	-0.01	-4	-0.03	-18
St. Louis Charter School Black Students	0.08**	46**	0.10*	56*
St. Louis Magnet School Black Students	0.25**	145**	0.26**	154**
St. Louis Other District School Black Students	-0.08**	-45**	-0.12**	-72**

## Compared with Black Students in Other District Schools in St. Louis

St. Louis Charter School Black Students	0.16**	91**	0.22**	128**
St. Louis Magnet School Black Students	0.32**	189**	0.38**	225**

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

St. Louis Hispanic Students Overall	0.03	15	0.04	24
St. Louis Charter School Hispanic Students	0.08**	47**	0.07	43
St. Louis Magnet School Hispanic Students	0.11	66	0.17	102
St. Louis Other District School Hispanic Students	-0.06	-34	-0.01	-8

## Compared with Hispanic Students in Other District Schools in St. Louis

St. Louis Charter School Hispanic Students	0.14**	81**	0.09	50
St. Louis Magnet School Hispanic Students	0.17	99	0.19	110

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

St. Louis Students in Poverty Overall	0.02	9	0.00	-1
St. Louis Charter School Students in Poverty	0.08**	44**	0.10**	60**
St. Louis Magnet School Students in Poverty	0.30**	178**	0.29**	172**
St. Louis Other District School Students in Poverty	-0.07**	-40**	-0.11**	-63**

## Compared with Students in Poverty in Other District Schools in St. Louis

St. Louis Charter School Students in Poverty	0.14**	84**	0.21**	122**
St. Louis Magnet School Students in Poverty	0.37**	218**	0.40**	235**

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

St. Louis ELL Students Overall	-0.01	-8	0.04	20
St. Louis Charter School ELL Students	0.02	12	0.08	45
St. Louis Magnet School ELL Students	0.19	112	0.27	156
St. Louis Other District School ELL Students	-0.04	-24	0.00	2

## Compared with ELL Students in Other District Schools in St. Louis

St. Louis Charter School ELL Students	0.06	35	0.07	43
St. Louis Magnet School ELL Students	0.23**	135**	0.26**	153**

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

St. Louis Special Ed Students Overall	0.05	28	0.03	17
St. Louis Charter School Special Ed Students	0.07	41	0.16**	92**
St. Louis Magnet School Special Ed Students	0.45**	266**	0.42**	244**
St. Louis Other District School Special Ed Students	0.00	2	-0.06	-38

## Compared with Special Ed Students in Other District Schools in St. Louis

St. Louis Charter School Special Ed Students	0.07	39	0.22**	129**
St. Louis Magnet School Special Ed Students	0.45**	263**	0.48**	282**

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

St. Louis Male Students Overall	0.03	14	-0.01	-4
St. Louis Charter School Male Students	0.07*	43*	0.07	42
St. Louis Magnet School Male Students	0.36**	212**	0.34**	198**
St. Louis Other District School Male Students	-0.06**	-35**	-0.1**	-61**

## Compared with Male Students in Other District Schools in St. Louis

St. Louis Charter School Male Students	0.13**	78**	0.18**	103**
St. Louis Magnet School Male Students	0.42**	247**	0.44**	259**

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

St. Louis Female Students Overall	0.01	3	0.01	2
St. Louis Charter School Female Students	0.06**	35**	0.10**	61**
St. Louis Magnet School Female Students	0.25**	146**	0.26**	150**
St. Louis Other District School Female Students	-0.08**	-45**	-0.11**	-65**

## Compared with Female Students in Other District Schools in St. Louis

St. Louis Charter School Female Students	0.14**	80**	0.21**	125**
St. Louis Magnet School Female Students	0.32**	191**	0.36**	214**

Significant at  $p < 0.05^*$

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

**THANK YOU**

