

# City Study 2022:

MEMPHIS

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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 Memphis. 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 FOUR 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.



## ACHIEVEMENT SCHOOL DISTRICT (ASD) SCHOOLS

Schools needing improvement that are directly run by the district's staff or operated by charter management organizations (CMOs) authorized by the district.



## OPTIONAL SCHOOLS

District-run schools that screen all the students with academic criteria.



## OTHER DISTRICT-RUN SCHOOLS

Public schools not belonging to any of above types.



# Research Question and Analyses

IN THIS REPORT WE EXAMINE ACADEMIC PERFORMANCE IN MEMPHIS USING DATA FROM THE SCHOOL YEARS 2016-17 THROUGH 2018-19. THERE ARE THREE LEVELS OF ANALYSIS.

01

**Overall performance** in Memphis schools over two years.

02

**Performance for ASD schools, charter schools, optional schools, and the rest of Memphis 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 Memphis students is benchmarked against the state average performance, accounting for student characteristics.
- The performance of ASD school students, performance of charter school students, performance of optional school students within Memphis are then compared to that of similar traditional public school (other district school) students within Memphis.



# ○ 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.

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





○ RESEARCH FINDINGS

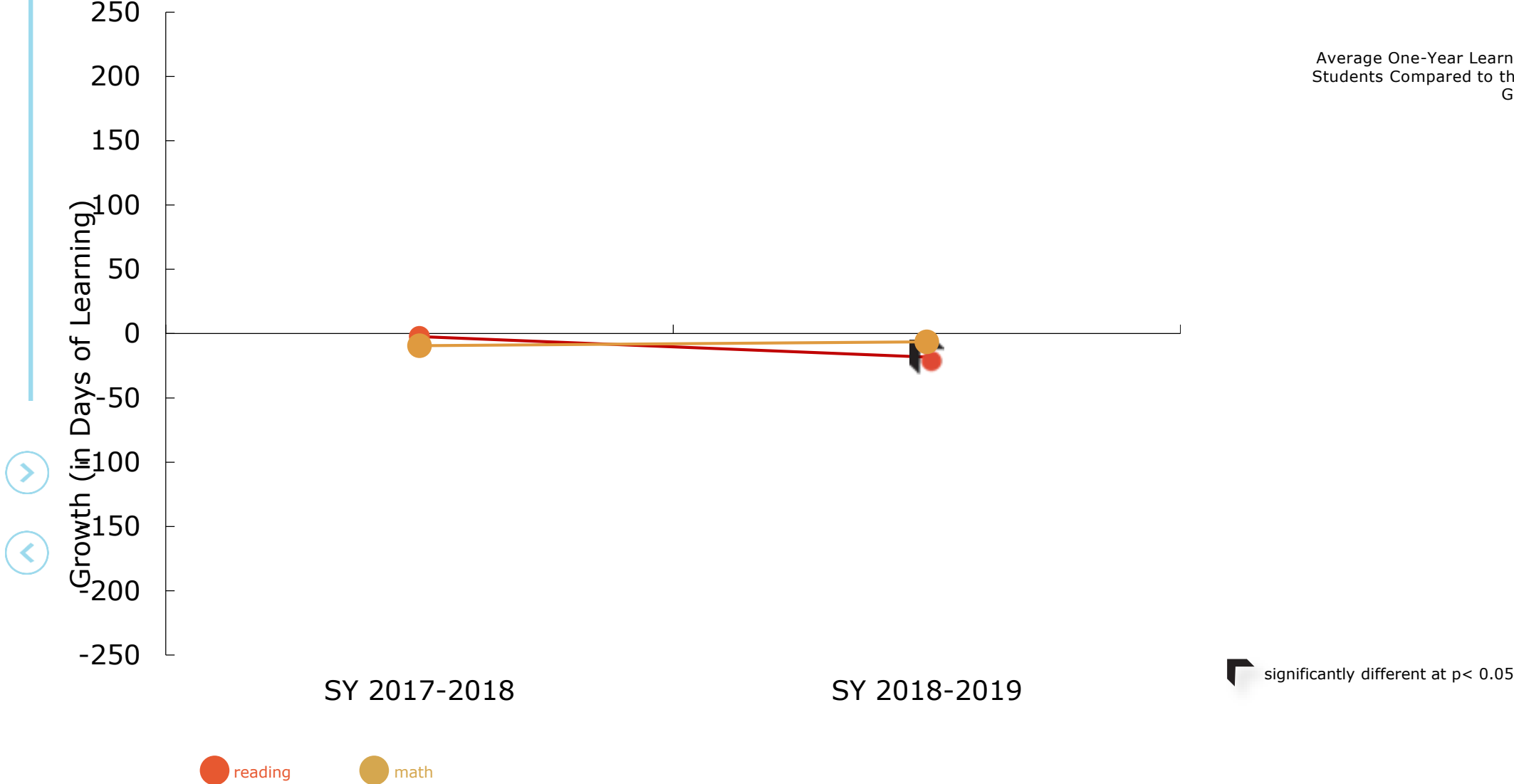
02





# Research Findings > Overall Memphis Results > Reading & Math

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

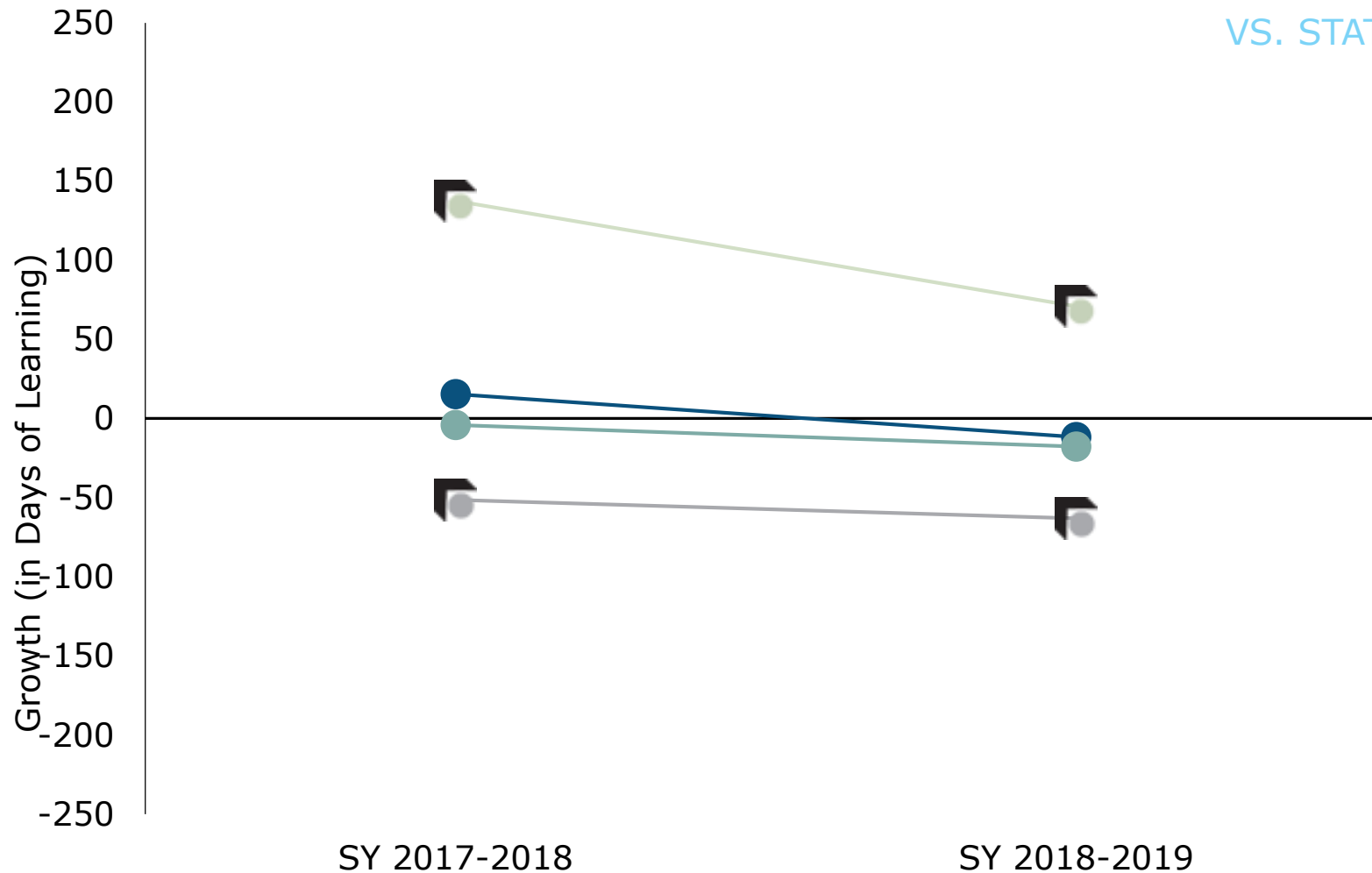


# Research Findings > Sector Analysis

## > Reading

### VS. STATE & COMPARISON WITHIN MEMPHIS

Learning Gains in Reading for Students in Memphis Charter Schools, Memphis ASD Schools, Memphis Optional Schools and Memphis District Compared to the State Average Learning Gains by Year



Tests of Differences		
Reading	'17-'18	'18-'19
Charter vs. District		
Optional vs. District	↙	↙
ASD vs. District	↙	↙
Charter vs. Optional	↙	↙
Charter vs. ASD	↙	↙

↙ significantly different at  $p < 0.05$

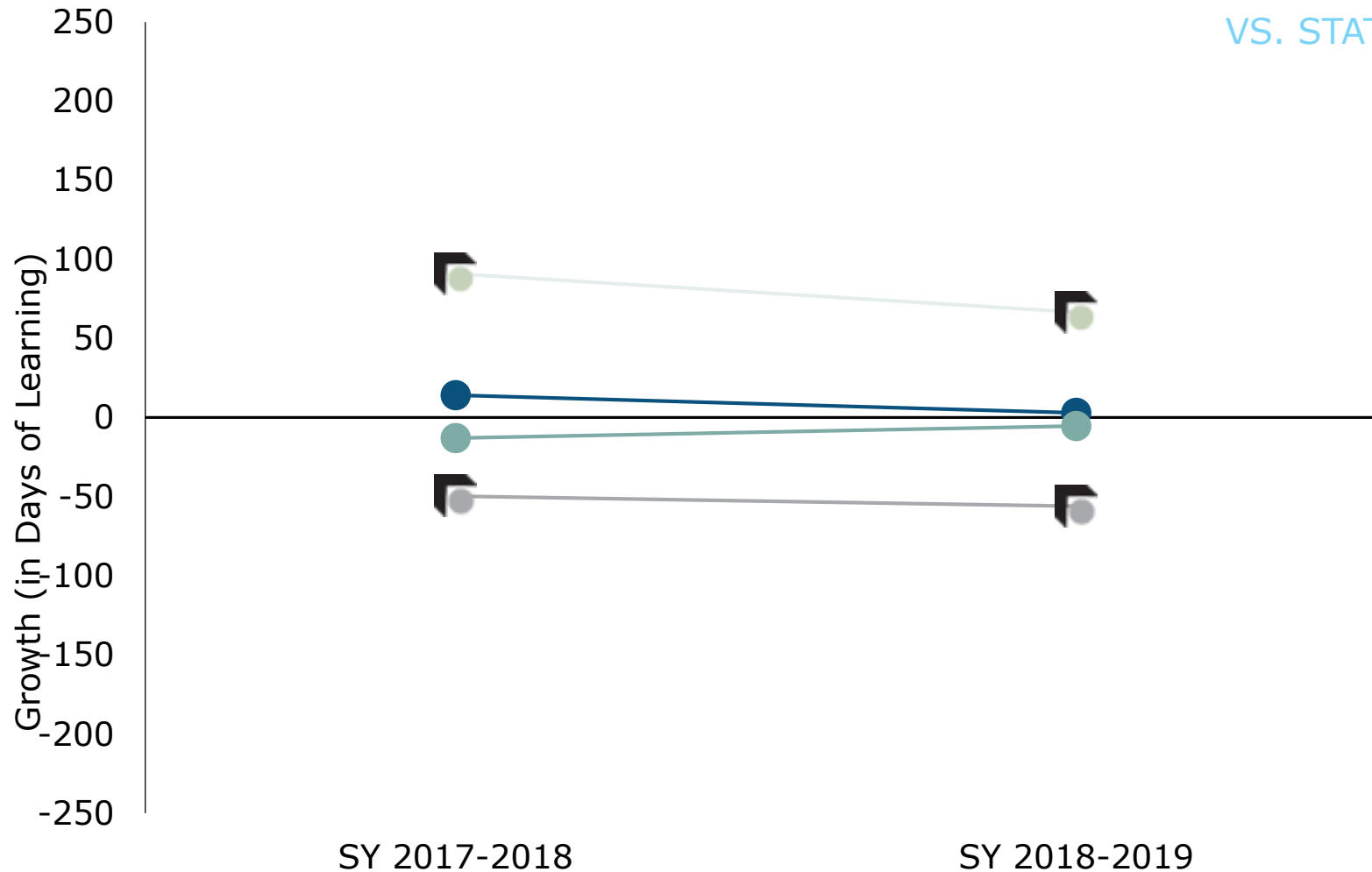
● charter ● innovation ● optional ● district

# Research Findings > Sector Analysis

## > Math

### VS. STATE & COMPARISON WITHIN MEMPHIS

Learning Gains in Math for Students in Memphis Charter Schools, Memphis ASD Schools, Memphis Optional Schools and Memphis District Compared to the State Average Learning Gains by Year



Tests of Differences		
Math	'17-'18	'18-'19
Charter vs. District		
Optional vs. District	↙	↙
ASD vs. District		↙
Charter vs. Optional	↙	↙
Charter vs. ASD	↙	↙

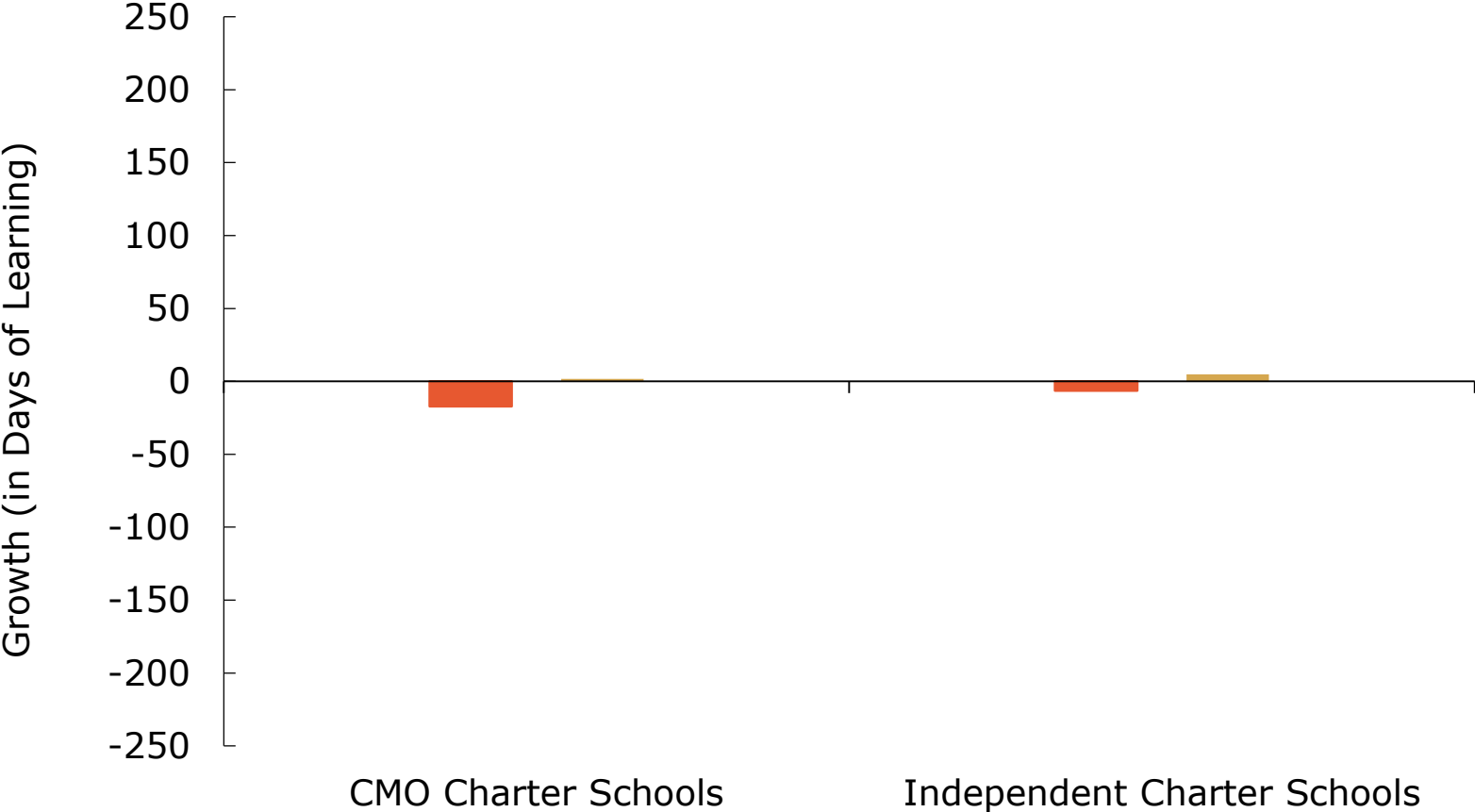
↙ significantly different at  $p < 0.05$

● charter ● innovation ● optional district

# Research Findings > Charter Subsector Analysis

## > vs. state & comparison within Memphis

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



### Tests of Differences

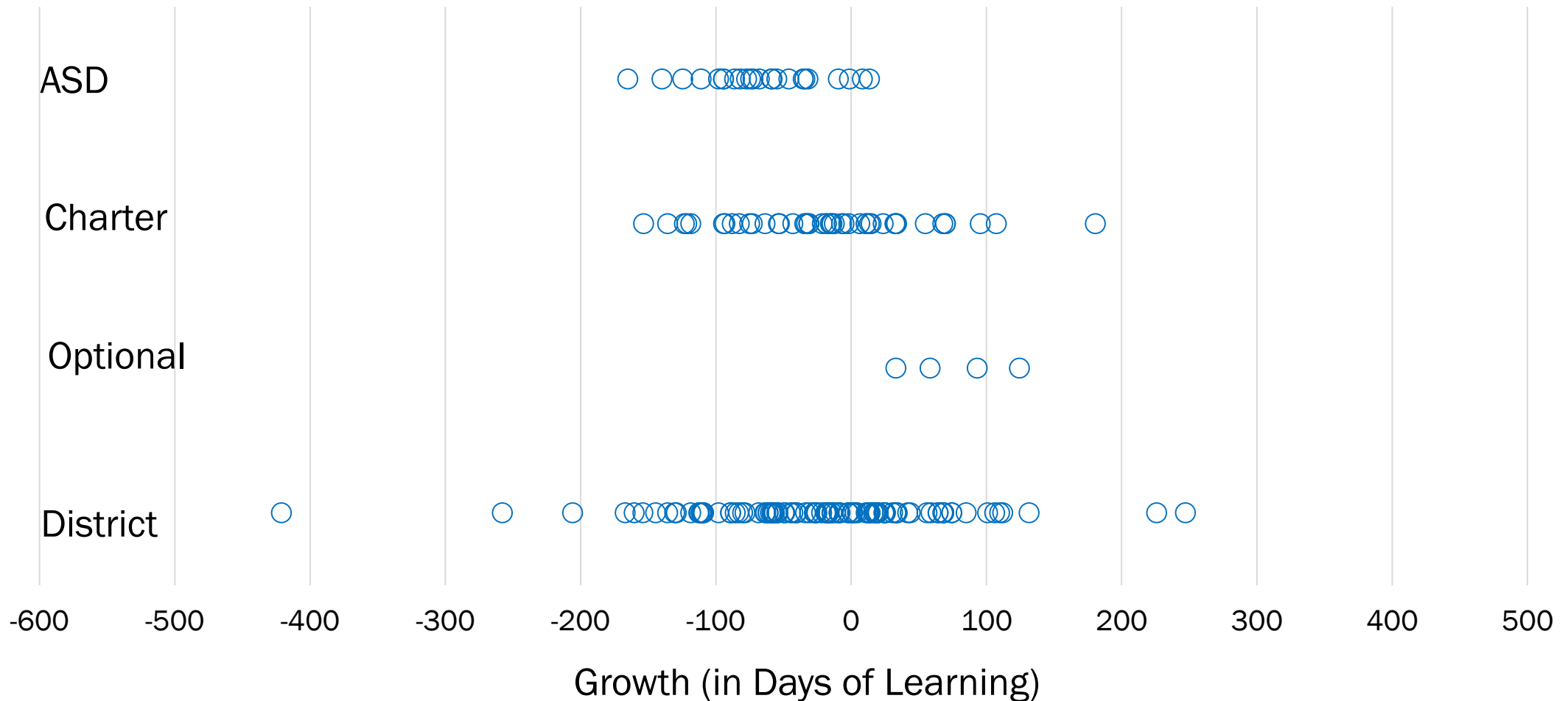
**Reading** sig  
CMOs vs Independent Charter Schools

**Math**  
CMOs vs Independent Charter Schools

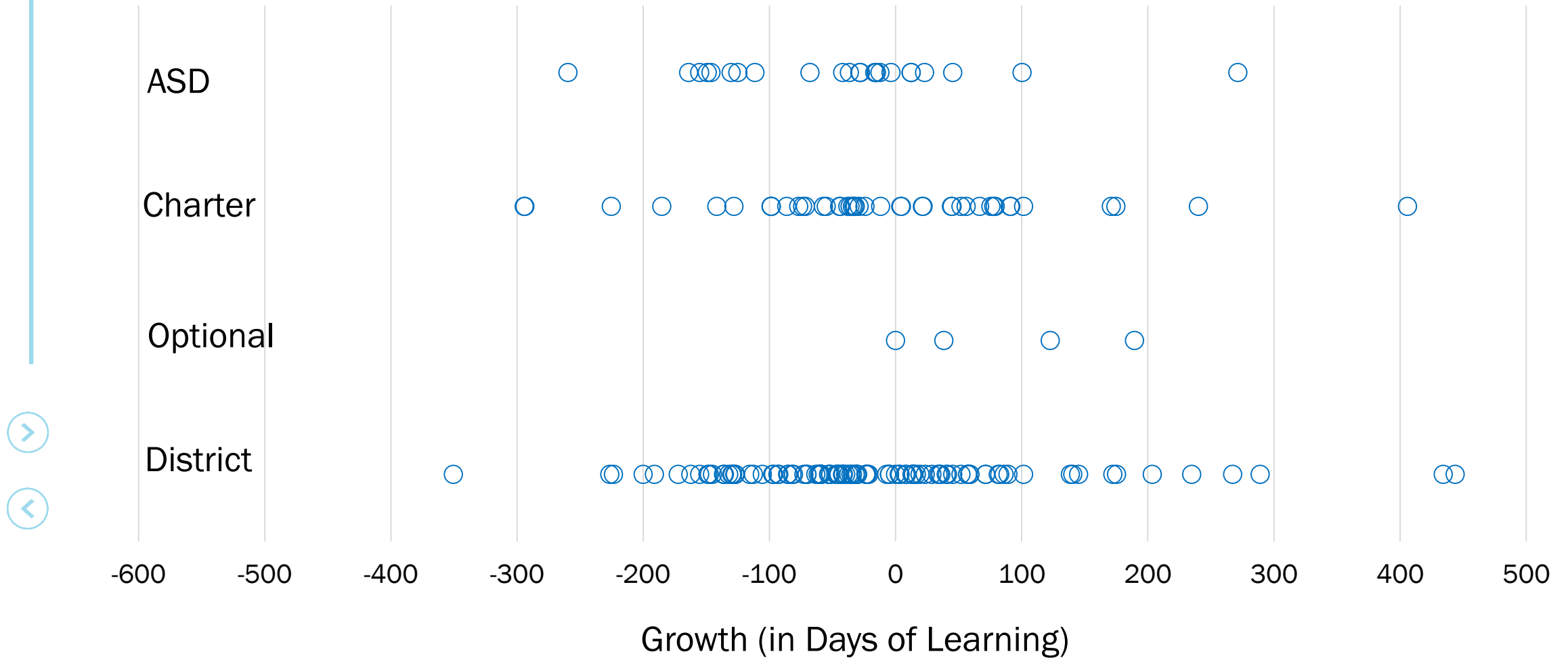
significantly different at  $p < 0.05$

● reading ● math

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



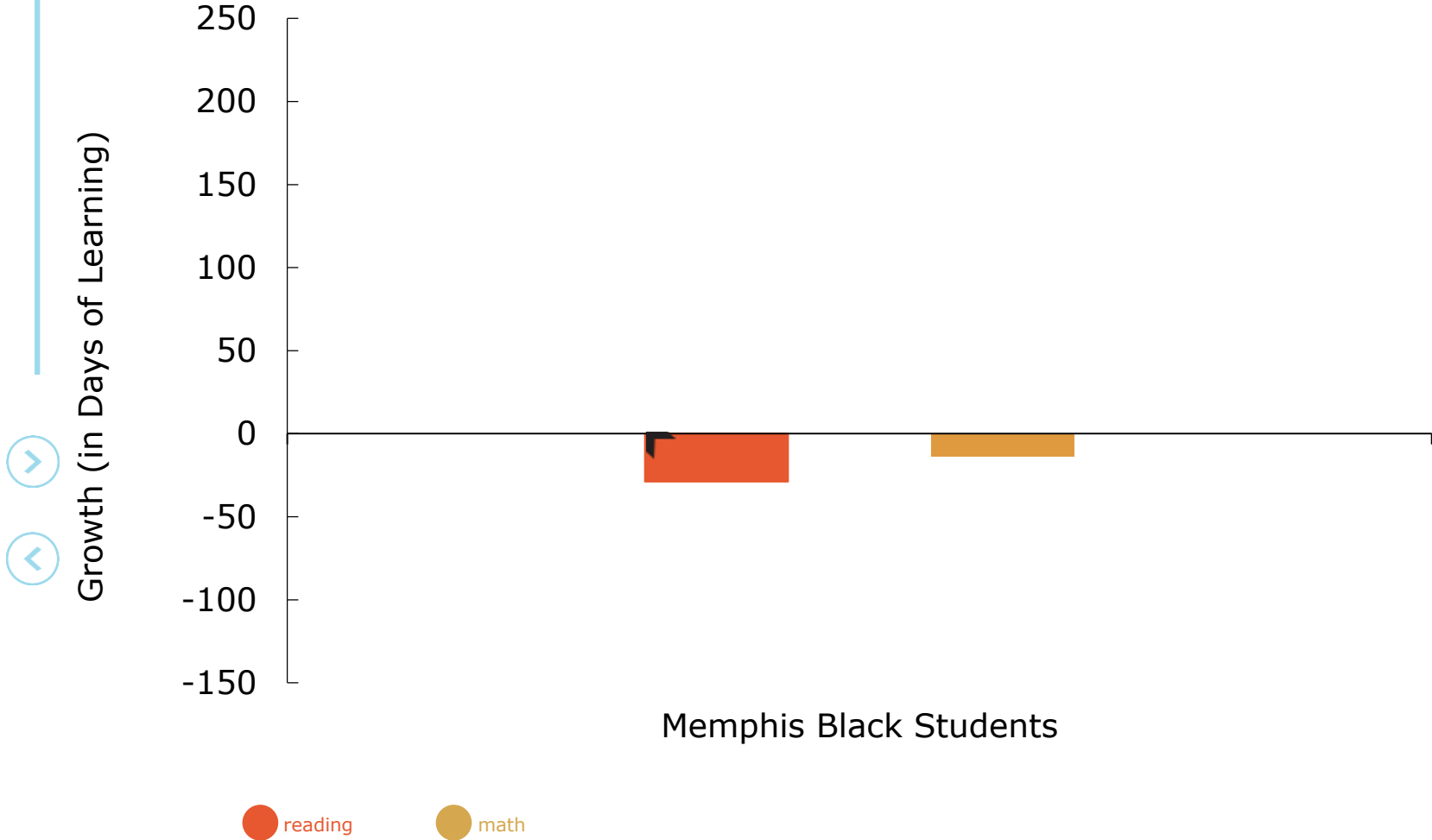
# Research Findings > School-Level Performance by Sector > Math



# Research Findings > Student Subgroup Analysis > Black Students

ALL VS. STATE

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



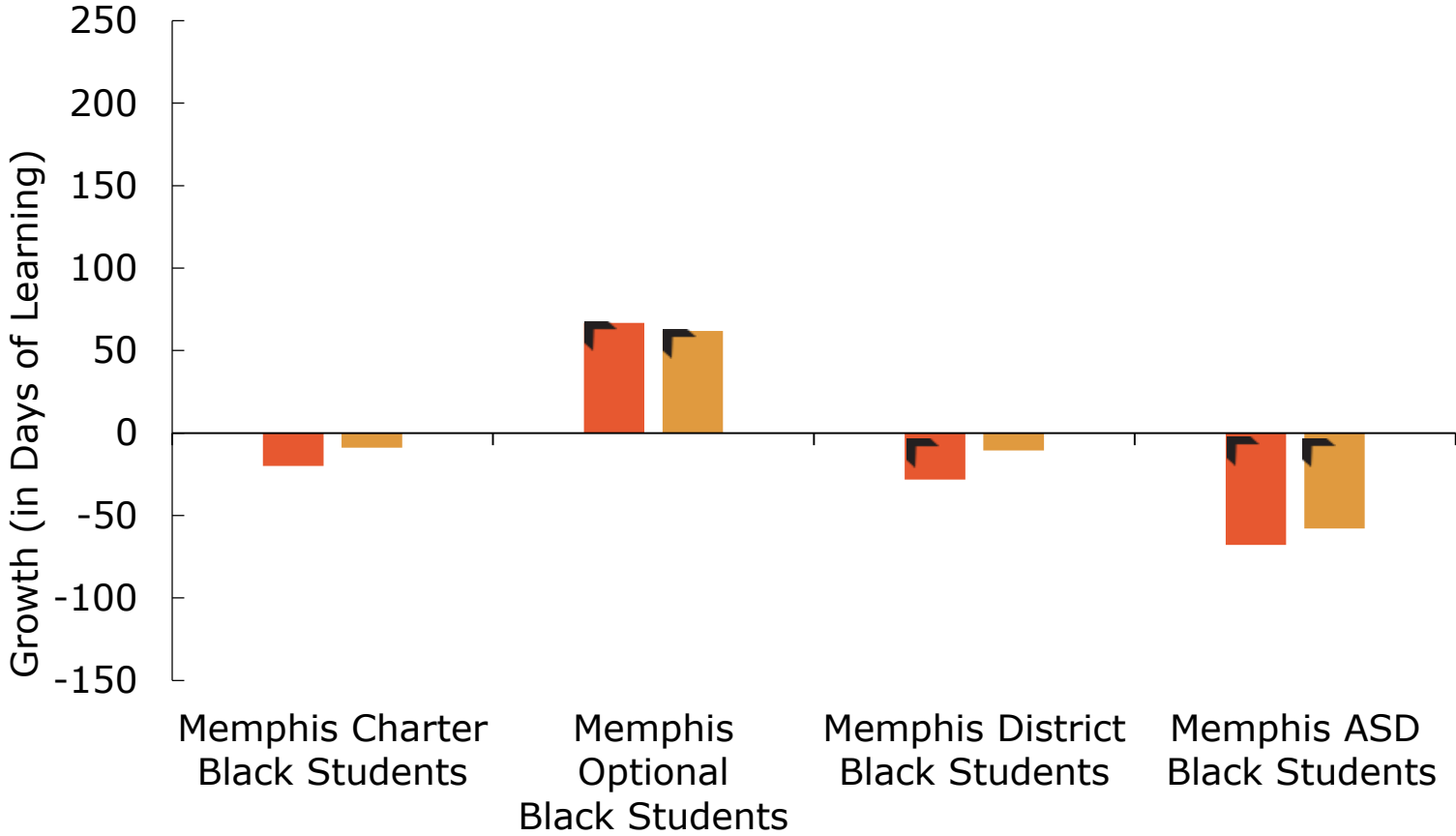
significantly different at  $p < 0.05$

# Research Findings > Student Subgroup Analysis

## > Black Students

### VS. STATE BY SECTOR

Learning Gains for Black Charter School Students, Black Innovation School Students, and Black District Students in Memphis Compared to the Average Learning Gains of Black Students Statewide, by Subject



#### Tests of Differences

Reading		sig
Charter Black vs. District Black		↙
Optional Black vs. District Black		↙
ASD Black vs. District Black		↙
Math		sig
Charter Black vs. District Black		↙
Optional Black vs. District Black		↙
ASD Black vs. District Black		↙

↙ significantly different at  $p < 0.05$

● reading ● math

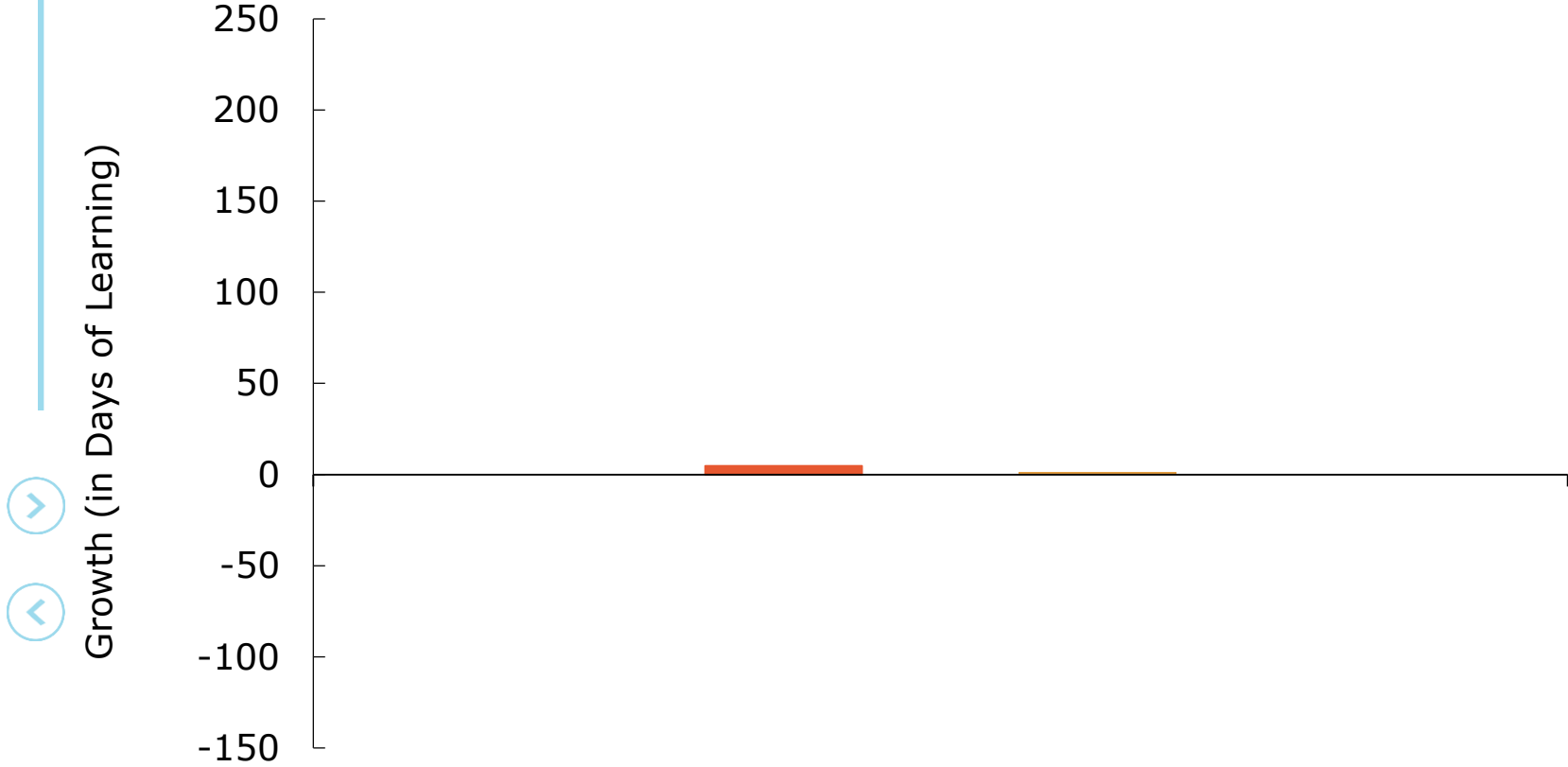


# Research Findings > Student Subgroup Analysis

## > Hispanic Students

ALL VS. STATE

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



significantly different at  $p < 0.05$

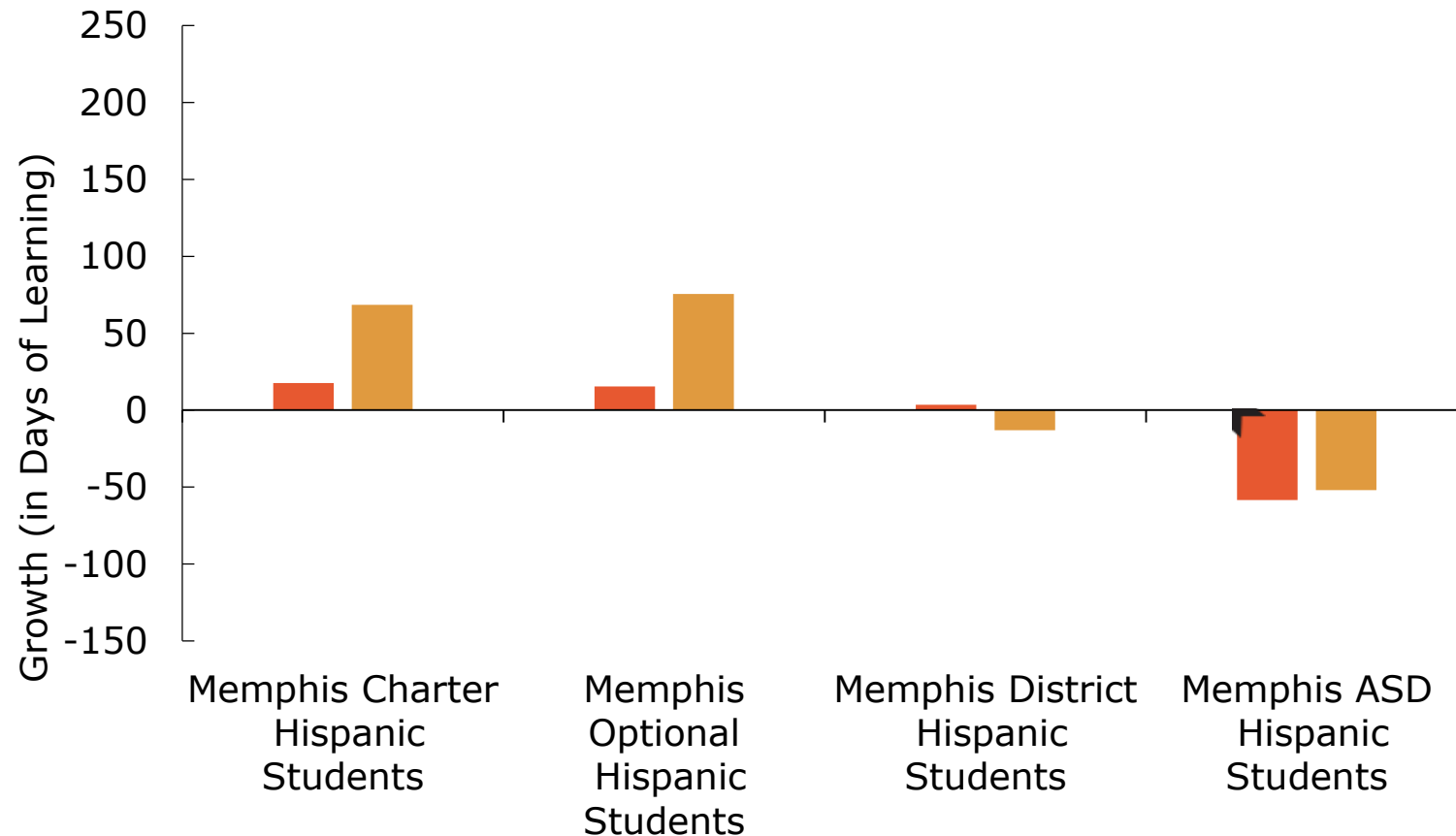
reading math

# Research Findings > Student Subgroup Analysis

## > Hispanic Students

VS. STATE BY SECTOR

Learning Gains for Hispanic Charter School Students, Hispanic Innovation School Students, and Hispanic District Students in Memphis Compared to the Average Learning Gains of Hispanic Students Statewide, by Subject



### Tests of Differences

#### Reading

sig

Charter Hispanic vs. District Hispanic

Optional Hispanic vs. District Hispanic

ASD Hispanic vs. District Hispanic

#### Math

Charter Hispanic vs. District Hispanic

Optional Hispanic vs. District Hispanic

ASD Hispanic vs. District Hispanic

significantly different at  $p < 0.05$

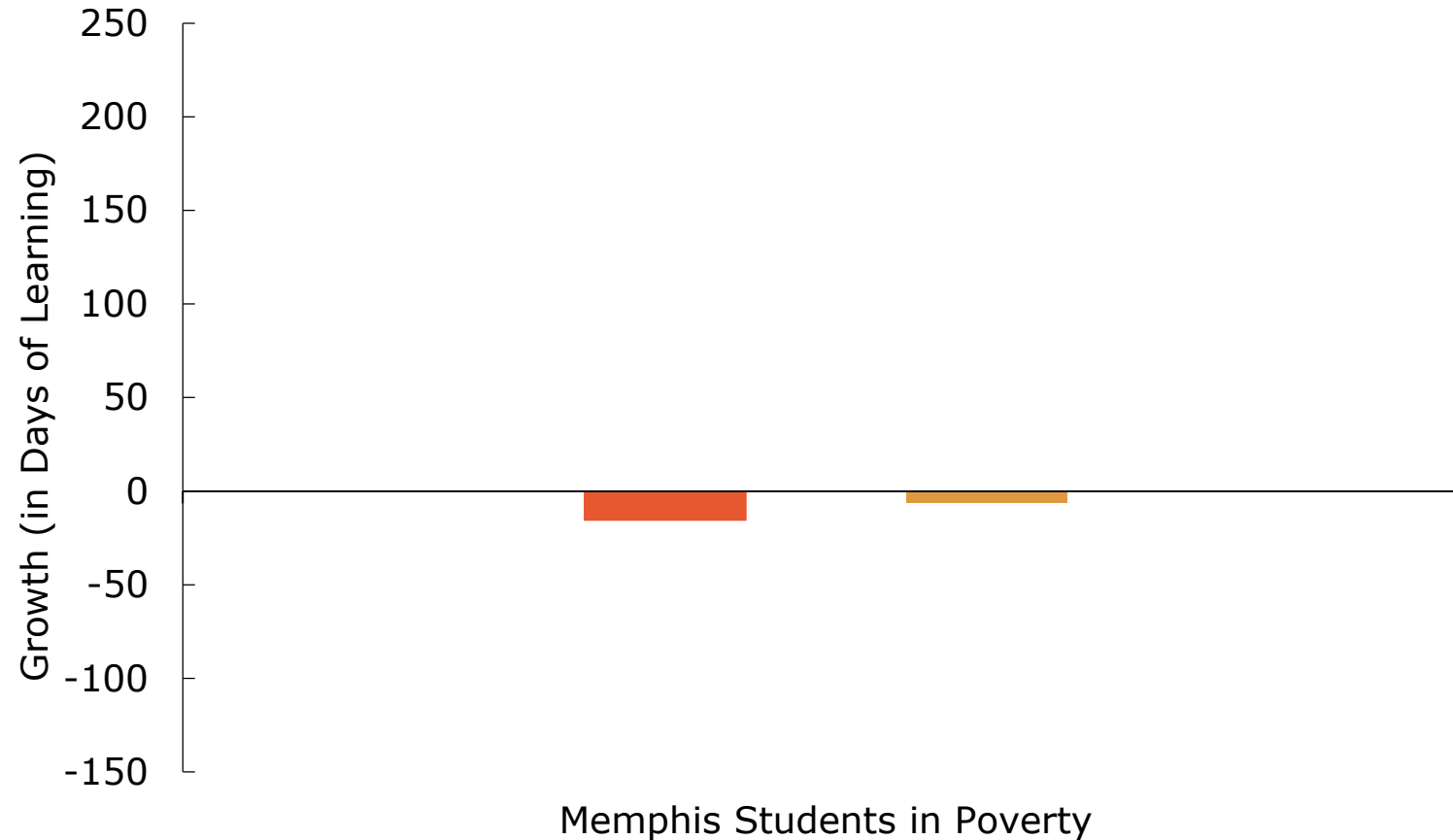
reading

math

# Research Findings > Student Subgroup Analysis > Students in Poverty

ALL VS. STATE

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



significantly different at  $p < 0.05$

reading

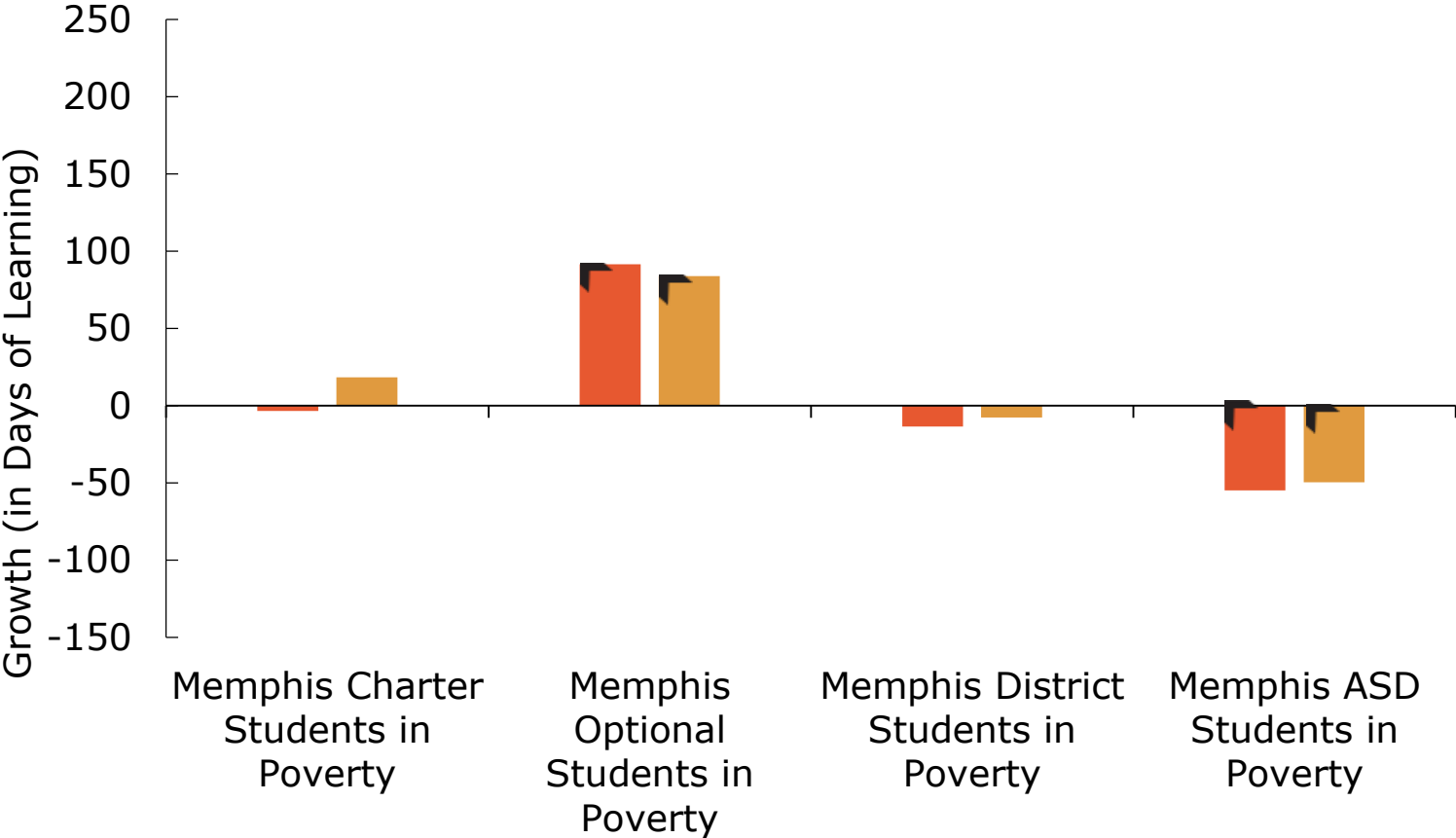
math

# Research Findings > Student Subgroup Analysis

## > Students in Poverty

VS. STATE BY SECTOR

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



### Tests of Differences

Reading	sig
Charter Poverty vs. District Poverty	↙
Optional Poverty vs. District Poverty	↙
ASD Poverty vs. District Poverty	↙
Math	
Charter Poverty vs. District Poverty	↙
Optional Poverty vs. District Poverty	↙
ASD Poverty vs. District Poverty	↙

↙ significantly different at  $p < 0.05$

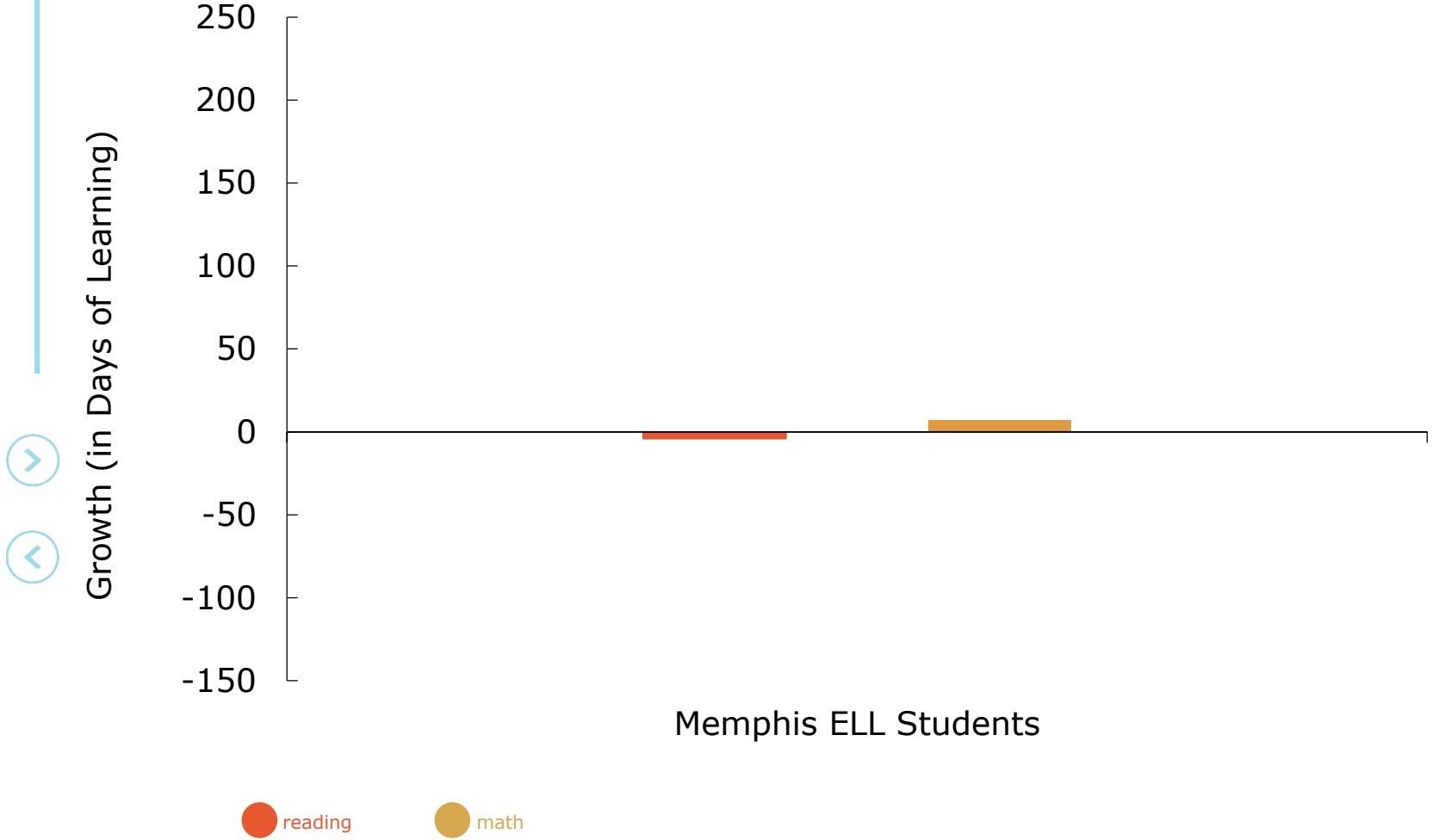
● reading ● math

# Research Findings > Student Subgroup Analysis

## > ELL Students

ALL VS. STATE

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



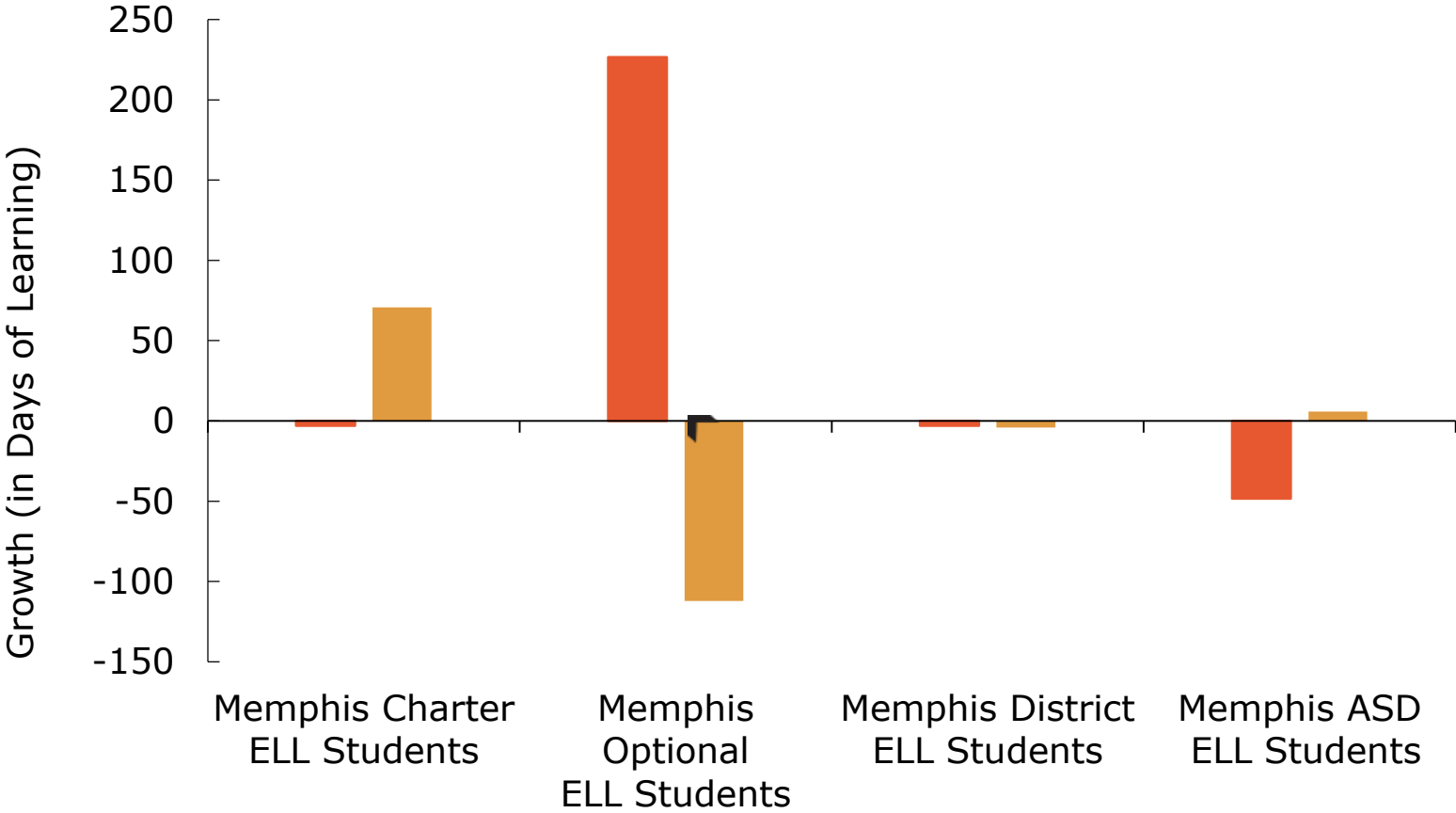
significantly different at  $p < 0.05$

# Research Findings > Student Subgroup Analysis

## > ELL Students

### VS. STATE BY SECTOR

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



#### Tests of Differences

Reading	sig
Charter ELL vs. District ELL	
Optional ELL vs. District ELL	
ASD ELL vs. District ELL	
Math	
Charter ELL vs. District ELL	
Optional ELL vs. District ELL	↙
ASD ELL vs. District ELL	

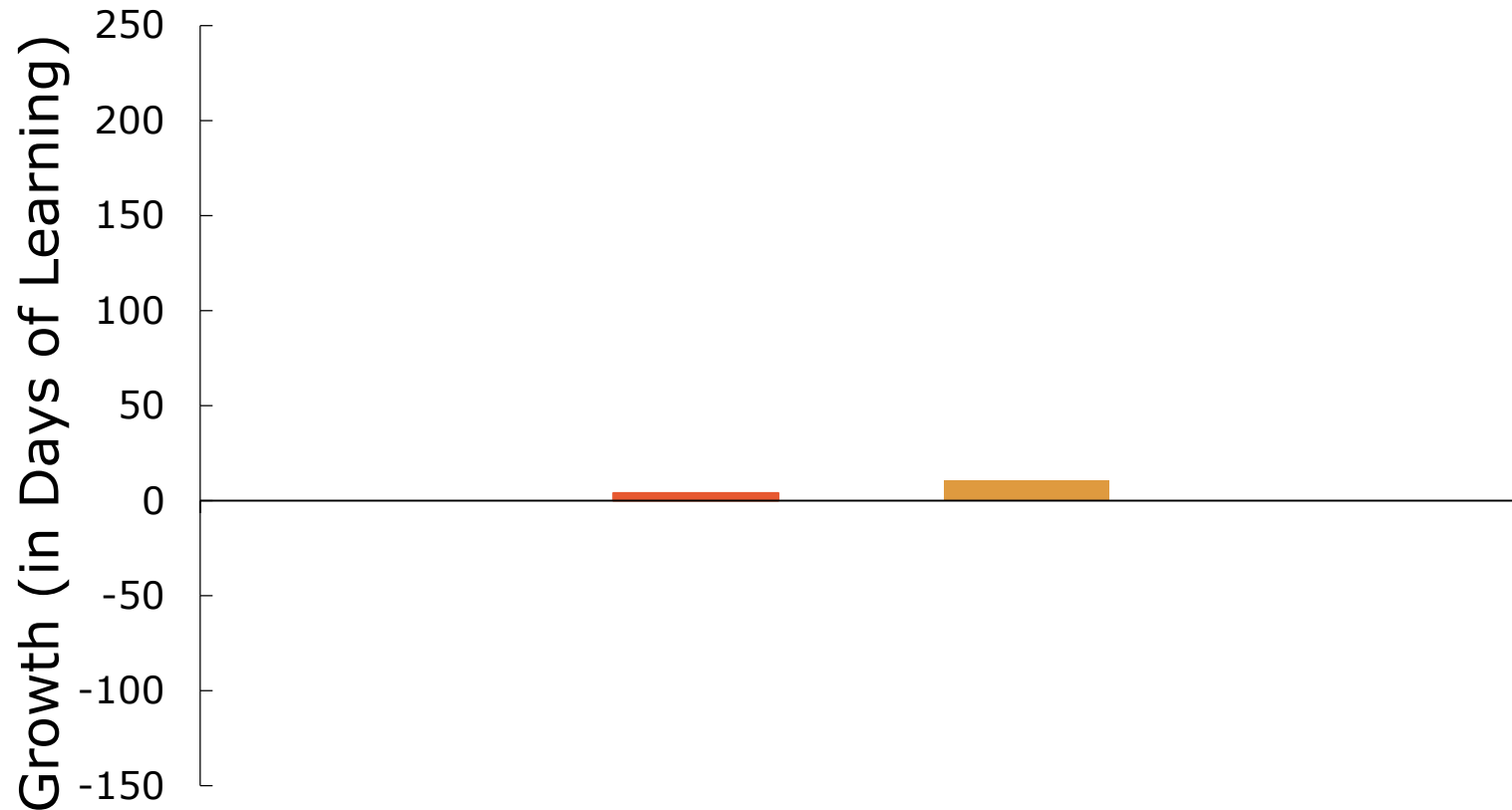
↙ significantly different at  $p < 0.05$

● reading ● math

# Research Findings > Student Subgroup Analysis > Special Ed Students

ALL VS. STATE

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



Memphis Special Ed Students

significantly different at  $p < 0.05$

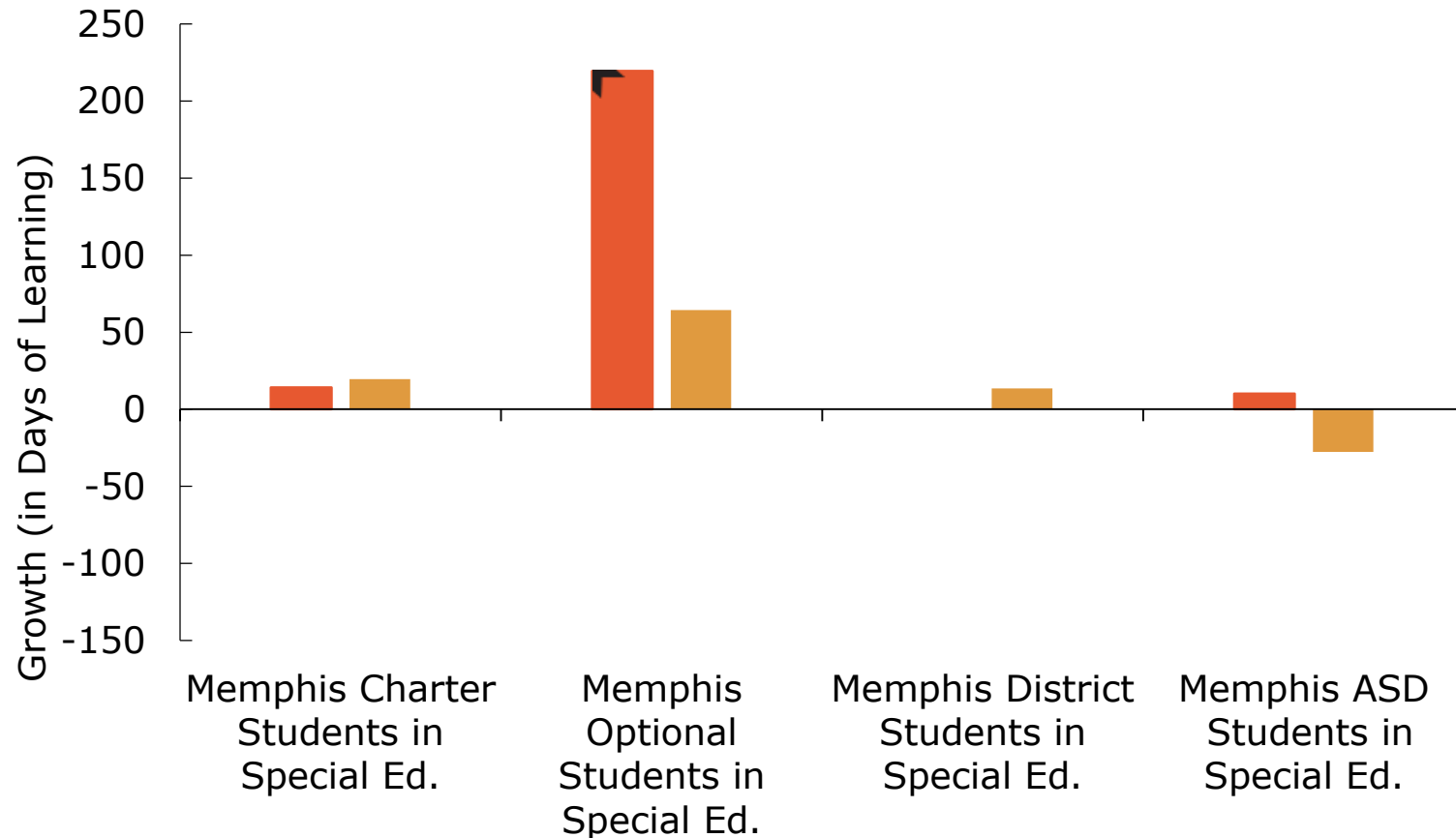
reading

math

# Research Findings > Student Subgroup Analysis > Special Ed Students

## VS. STATE BY SECTOR

Learning Gains for Memphis Charter School Students in Special Ed., Memphis Innovation School Students in Special Ed., and Memphis District 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

Optional Sped vs. District Sped

ASD Sped vs. District Sped

#### Math

Charter Sped vs. District Sped

Optional Sped vs. District Sped

ASD Sped vs. District Sped

significantly different at  $p < 0.05$

reading

math

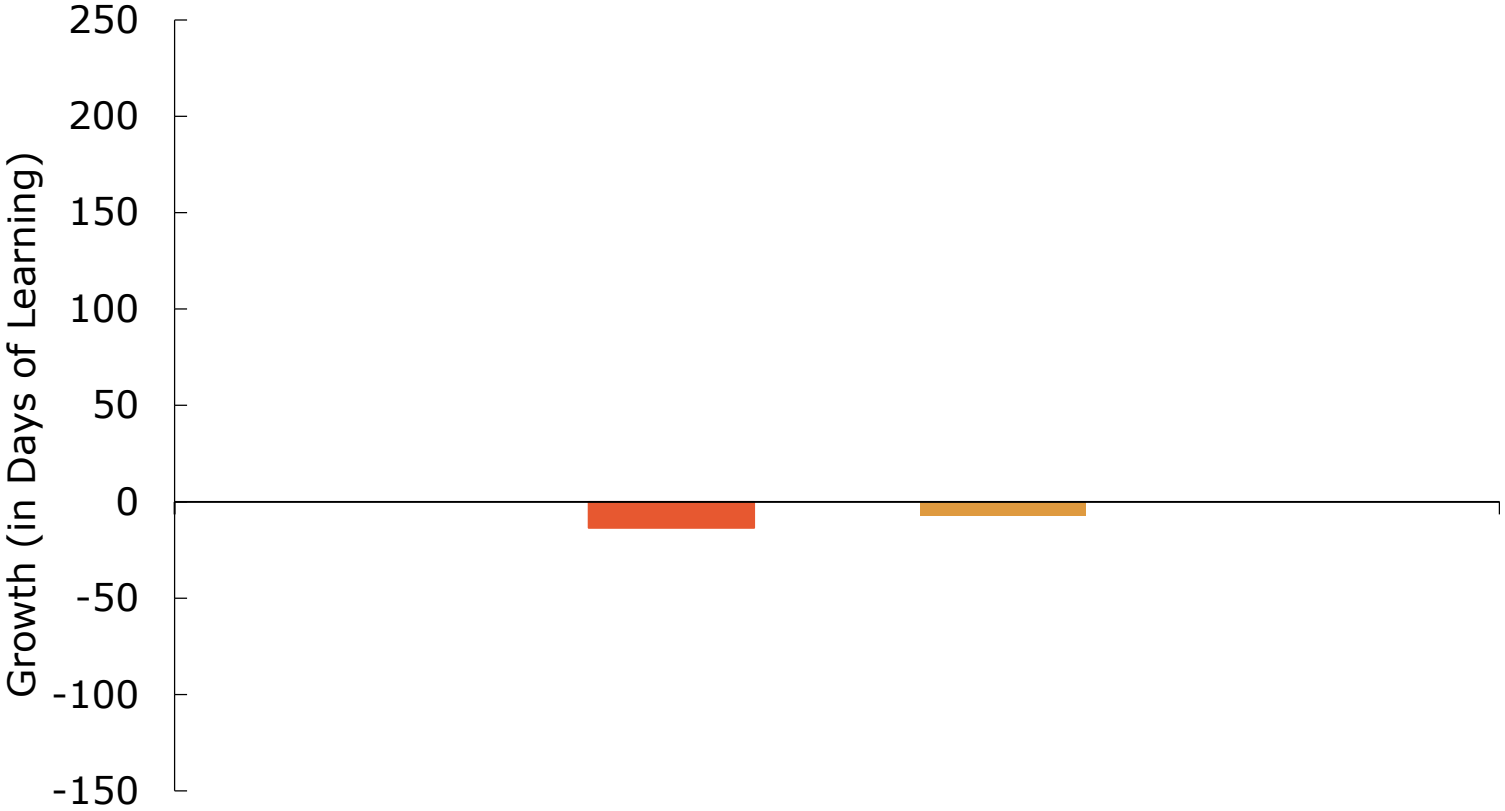


# Research Findings > Student Subgroup Analysis

## > Male Students

ALL VS. STATE

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



Memphis Male Students

significantly different at  $p < 0.05$

reading

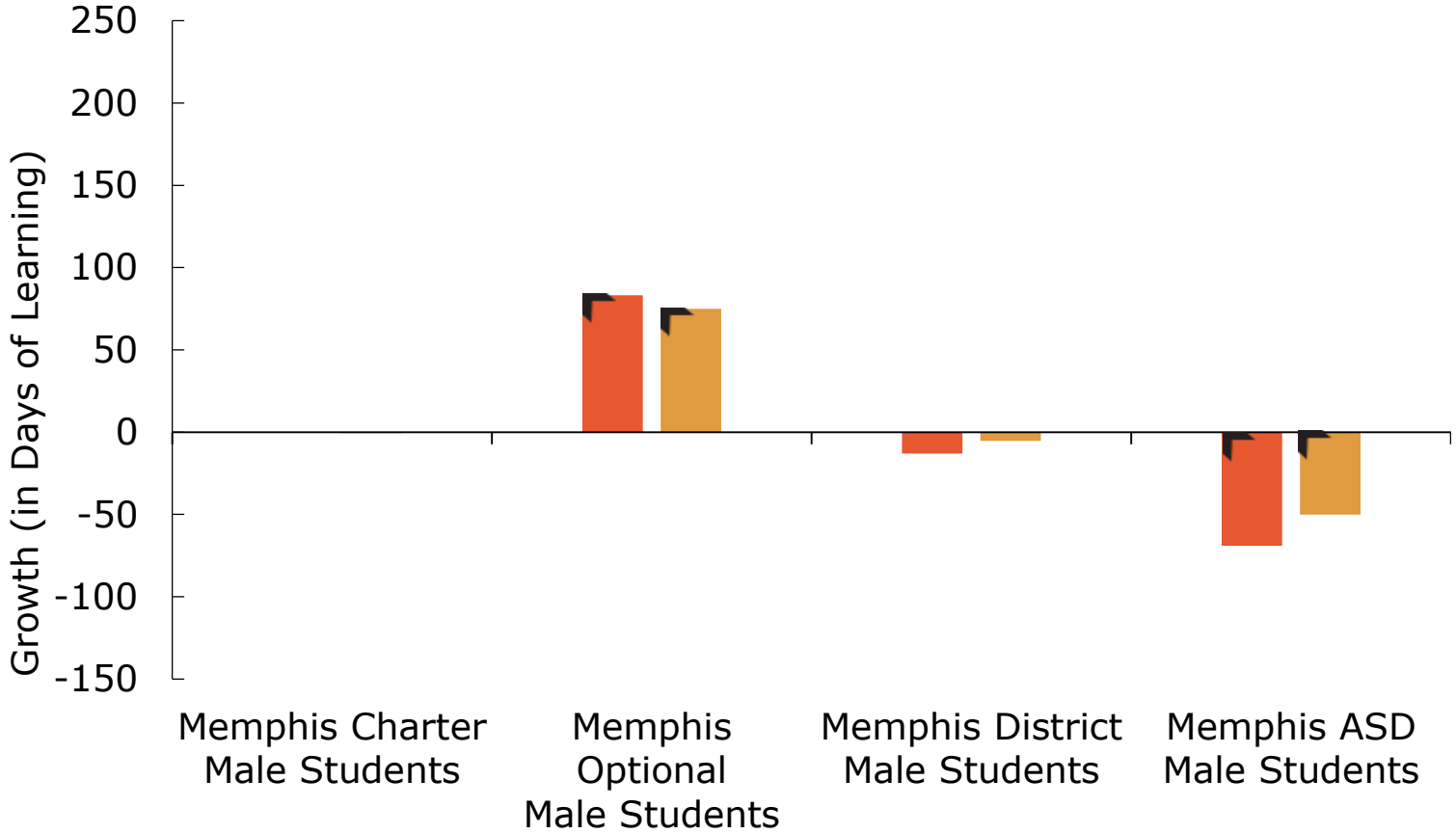
math

# Research Findings > Student Subgroup Analysis

## > Male Students

### VS. STATE BY SECTOR

Learning Gains for Male Charter School Students, Male Innovation School Students, and Male District Students in Memphis compared to the Average Learning Gains of Male Students Statewide, by Subject



#### Tests of Differences

Subject	Comparison	Significance
Reading	Charter Male vs. District Male	sig
	Optional Male vs. District Male	↙
	ASD Male vs. District Male	↙
Math	Charter Male vs. District Male	.
	Optional Male vs. District Male	↙
	ASD Male vs. District Male	↙

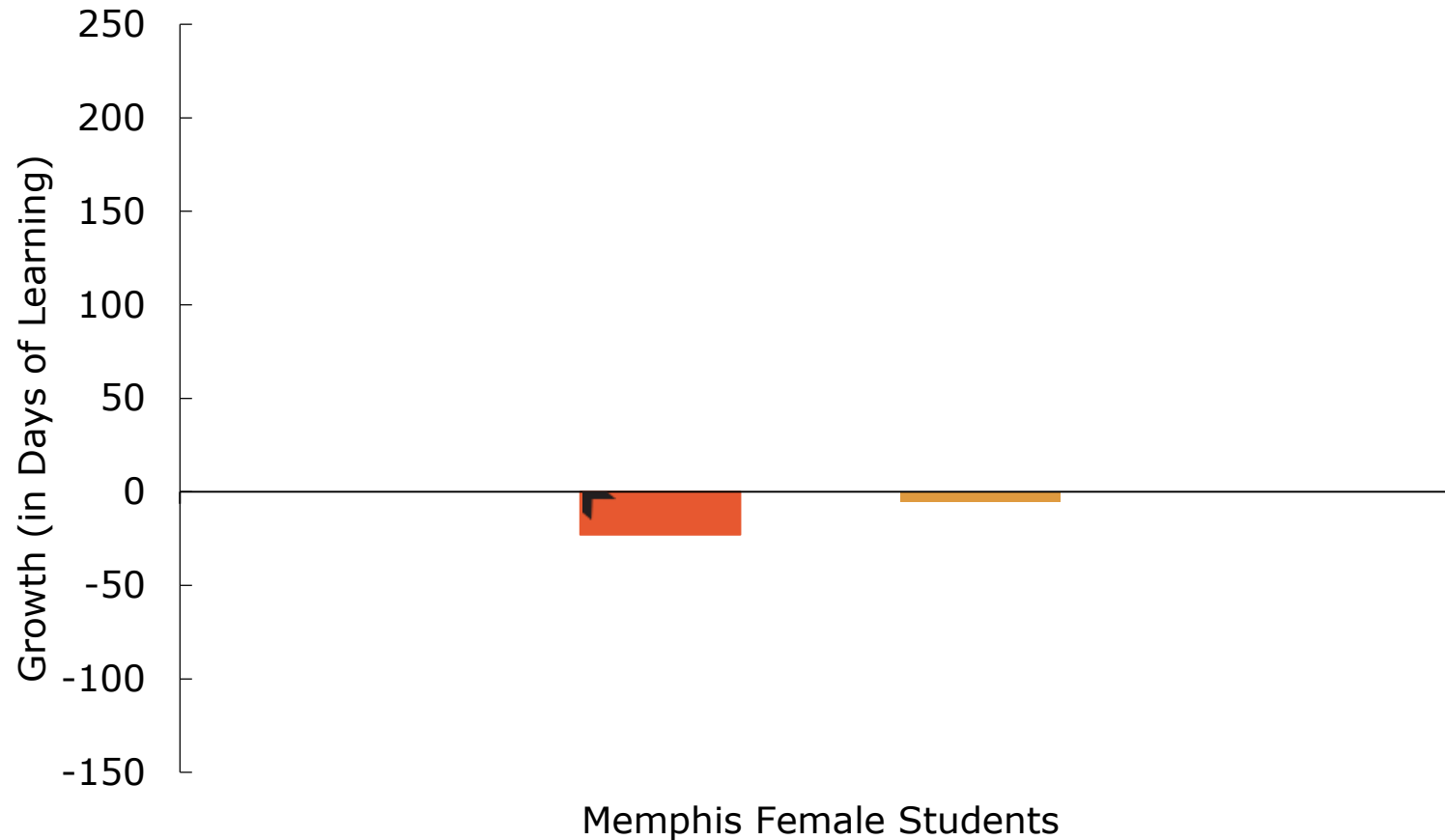
↙ significantly different at  $p < 0.05$

● reading ● math

# Research Findings > Student Subgroup Analysis > Female Students

ALL VS. STATE

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



significantly different at p < 0.05

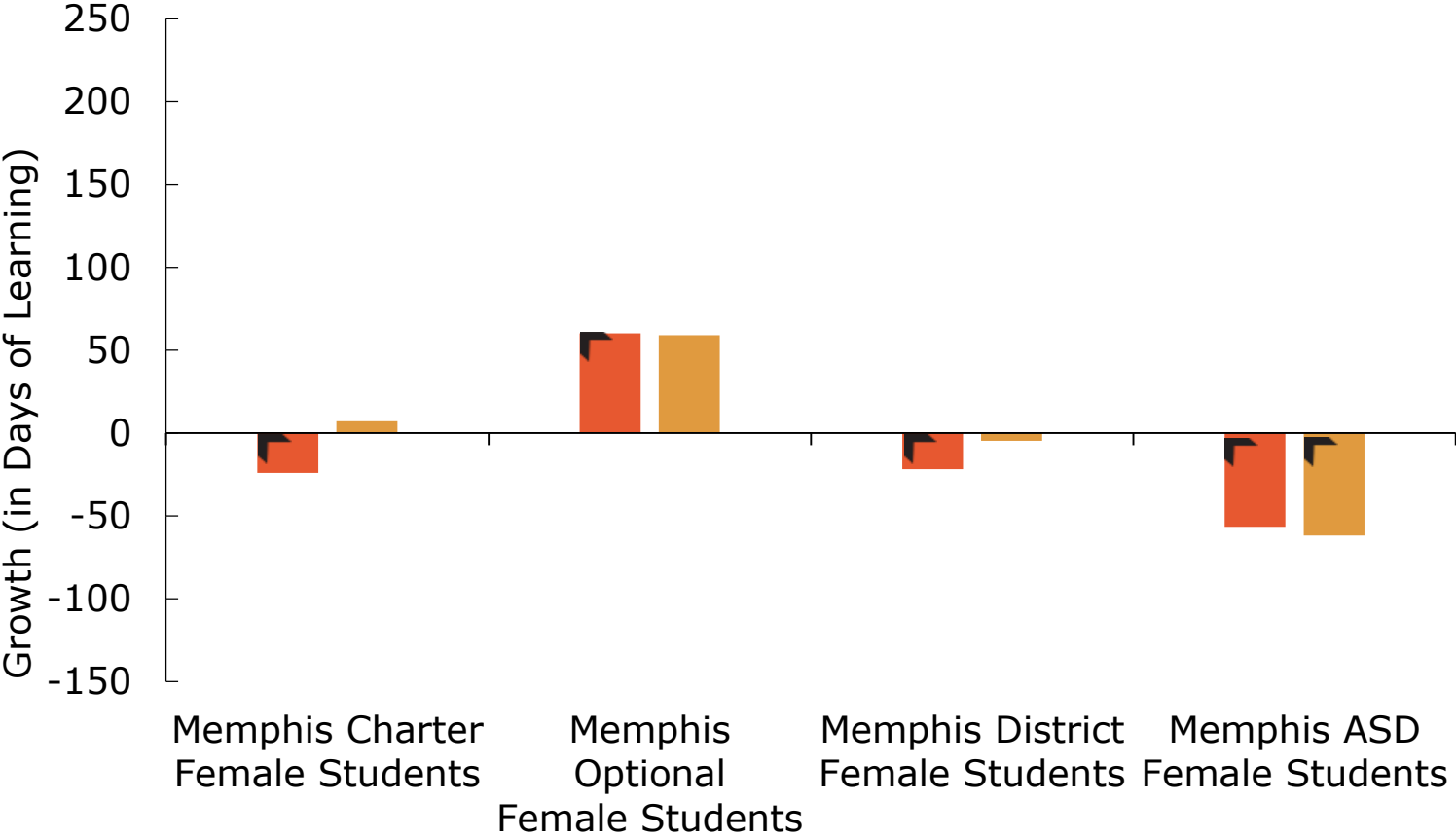
reading math

# Research Findings > Student Subgroup Analysis

## > Female Students

### VS. STATE BY SECTOR

Learning Gains for Female Charter School Students, Female Innovation School Students, and Female District Students in Memphis Compared to the Average Learning Gains of Female Students Statewide, by Subject



#### Tests of Differences

Subject	Comparison	Significance
Reading	Charter Female vs. District Female	sig
	Optional Female vs. District Female	↙
	ASD Female vs. District Female	↙
Math	Charter Female vs. District Female	
	Optional Female vs. District Female	
	ASD Female vs. District Female	↙

↙ significantly different at  $p < 0.05$

● reading ● math

## ○ Summary of Findings



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





○ APPENDIXES

03



# ○ Acknowledgments



**Tennessee Department of Education and Tennessee Education Research Alliance**

provided supports in the acquisition of student-level data.

**Shelby County Schools**

assisted CREDO with verifying the list of public schools in Memphis.



# 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 MEMPHIS 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 Memphis from 2016-17 to 2018-19, overall and by sector, is benchmarked to the state average growth, accounting for student characteristics.

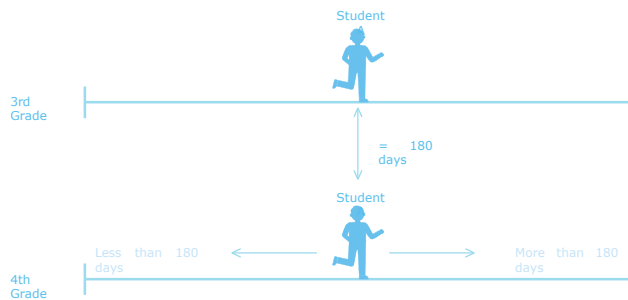
We also explore how one-year growth of Memphis students for the period ending in Spring 2019 differs by school type, race, poverty status, English language learner status, special education status, and gender.



# 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 Memphis Results

	READING		MATH	
	Standard Deviation	Days of Learning	Standard Deviation	Days of Learning
Memphis Overall 2017-18	0.00	-3	-0.02	-10
Memphis Overall 2018-19	-0.03*	-19*	-0.01	-7

Significant at  $p < 0.05^*$

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



# Memphis School Sectors Compared to State Average

	READING		MATH	
	Standard Deviation	Days of Learning	Standard Deviation	Days of Learning
ASD Schools 2017-18	-0.09**	-52**	-0.08*	-50*
ASD Schools 2018-19	-0.11**	-64**	-0.10**	-57**
Charter Schools 2017-18	0.03	15	0.02	14
Charter Schools 2018-19	-0.02	-12	0.01	2
Optional Schools 2017-18	0.23**	137**	0.15*	90*
Optional Schools 2018-19	0.12**	70**	0.11*	66*
Other District Schools 2017-18	-0.01	-5	-0.02	-13
Other District Schools 2018-19	-0.03	-18	-0.01	-6

Significant at  $p < 0.05^*$

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

# Comparison of School Sectors within Memphis

	READING		MATH	
	Standard Deviation	Days of Learning	Standard Deviation	Days of Learning
ASD Schools vs. Other District 2017-18	-0.08**	-48**	-0.06	-37
ASD Schools vs. Other District 2018-19	-0.10**	-59**	-0.09**	-51**
Charter Schools vs. Other District 2017-18	0.03	19	0.05	27
Charter Schools vs. Other District 2018-19	0.01	5	0.01	8
Optional Schools vs. Other District 2017-18	0.24**	141**	0.18**	103**
Optional Schools vs. Other District 2018-19	0.15**	88**	0.12**	71**

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
Memphis CMO vs. State Average	-0.03	-18	0.00	1
Memphis Independent Charters vs. State Average	-0.01	-7	0.01	4
Memphis CMO vs. Memphis Independent Charters	-0.02	-11	-0.01	-3

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

Memphis Black Students Overall	-0.05**	-29**	-0.02	-14
Memphis ASD School Black Students	-0.12**	-68**	-0.10**	-58**
Memphis Charter School Black Students	-0.03	-21	-0.02	-9
Memphis Optional School Black Students	0.11**	66**	0.11*	61*
Memphis Other District Black Students	-0.05**	-29**	-0.02	-11

## Compared with Black Students in Other District in Memphis

Memphis Charter School Black Students	0.01	8	0.00	1
Memphis Optional School Black Students	0.16**	94**	0.12*	72*
Memphis ASD School Black Students	-0.07**	-40**	-0.08**	-48**

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

Memphis Hispanic Students Overall	0.01	4	0.00	1
Memphis ASD School Hispanic Students	-0.10**	-59**	-0.09	-52
Memphis Charter School Hispanic Students	0.03	17	0.12	68
Memphis Optional School Hispanic Students	0.03	15	0.13	75
Memphis Other District Hispanic Students	0.01	3	-0.02	-13

## Compared with Hispanic Students in Other District in Memphis

Memphis Charter School Hispanic Students	0.02	14	0.14	81
Memphis Optional School Hispanic Students	0.02	11	0.15	88
Memphis ASD School Hispanic Students	-0.11**	-62**	-0.07	-39

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

Memphis Students in Poverty Overall	-0.03	-16	-0.01	-6
Memphis ASD School Students in Poverty	-0.09**	-55**	-0.08**	-50**
Memphis Charter School Students in Poverty	-0.01	-4	0.03	18
Memphis Optional School Students in Poverty	0.16**	91**	0.14**	83**
Memphis Other District Students in Poverty	-0.02	-14	-0.01	-8

## Compared with Students in Poverty in Other District in Memphis

Memphis Charter School Students in Poverty	0.02	10	0.04	25
Memphis Optional School Students in Poverty	0.18**	105**	0.16**	91**
Memphis ASD School Students in Poverty	-0.07**	-42**	-0.07**	-42**



# ○ Student Subgroup Analysis > ELL Students

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

## Compared with Statewide Average of ELL Students

Memphis ELL Students Overall	-0.01	-5	0.01	7
Memphis ASD School ELL Students	-0.08	-49	0.01	5
Memphis Charter School ELL Students	-0.01	-3	0.12	70
Memphis Optional School ELL Students	0.38	226	-0.19**	-113**
Memphis Other District ELL Students	-0.01	-3	-0.01	-5

## Compared with ELL Students in Other District in Memphis

Memphis Charter School ELL Students	0.00	0	0.13	74
Memphis Optional School ELL Students	0.39	229	-0.18**	-108**
Memphis ASD School ELL Students	-0.08	-46	0.02	10



# ○ 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

Memphis Special Ed Students Overall	0.01	4	0.02	10
Memphis ASD School Special Ed Students	0.02	10	-0.05	-28
Memphis Charter School Special Ed Students	0.02	14	0.03	19
Memphis Optional School Special Ed Students	0.37**	219**	0.11	64
Memphis Other District Special Ed Students	0.00	0	0.02	13

## Compared with Special Ed Students in Other District in Memphis

Memphis Charter School Special Ed Students	0.02	14	0.01	5
Memphis Optional School Special Ed Students	0.37**	219**	0.09	50
Memphis ASD School Special Ed Students	0.02	10	-0.07	-42



# ○ Student Subgroup Analysis > Male Students

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

## Compared with Statewide Average of Male Students

Memphis Male Students Overall	-0.02	-14	-0.01	-8
Memphis ASD School Male Students	-0.12**	-70**	-0.09**	-51**
Memphis Charter School Male Students	0.00	0	0.00	-1
Memphis Optional School Male Students	0.14**	83**	0.13**	74**
Memphis Other District Male Students	-0.02	-13	-0.01	-6

## Compared with Male Students in Other District in Memphis

Memphis Charter School Male Students	0.02	12	0.01	4
Memphis Optional School Male Students	0.16**	96**	0.14**	80**
Memphis ASD School Male Students	-0.10**	-57**	-0.08**	-45**



# ○ Student Subgroup Analysis > Female Students

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

## Compared with Statewide Average of Female Students

Memphis Female Students Overall	-0.04*	-24*	-0.01	-6
Memphis ASD School Female Students	-0.10**	-57**	-0.11**	-62**
Memphis Charter School Female Students	-0.04*	-25*	0.01	7
Memphis Optional School Female Students	0.10*	60*	0.10	59
Memphis Other District Female Students	-0.04*	-22*	-0.01	-5

## Compared with Female Students in Other District in Memphis

Memphis Charter School Female Students	0.00	-3	0.02	11
Memphis Optional School Female Students	0.14**	82**	0.11	63
Memphis ASD School Female Students	-0.06**	-35**	-0.10**	-58**



**THANK YOU**

