



Achieving *Excellence* and *Equity* Through Resource Use

ERS Summary Report
October 2019



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Introduction

Executive Summary

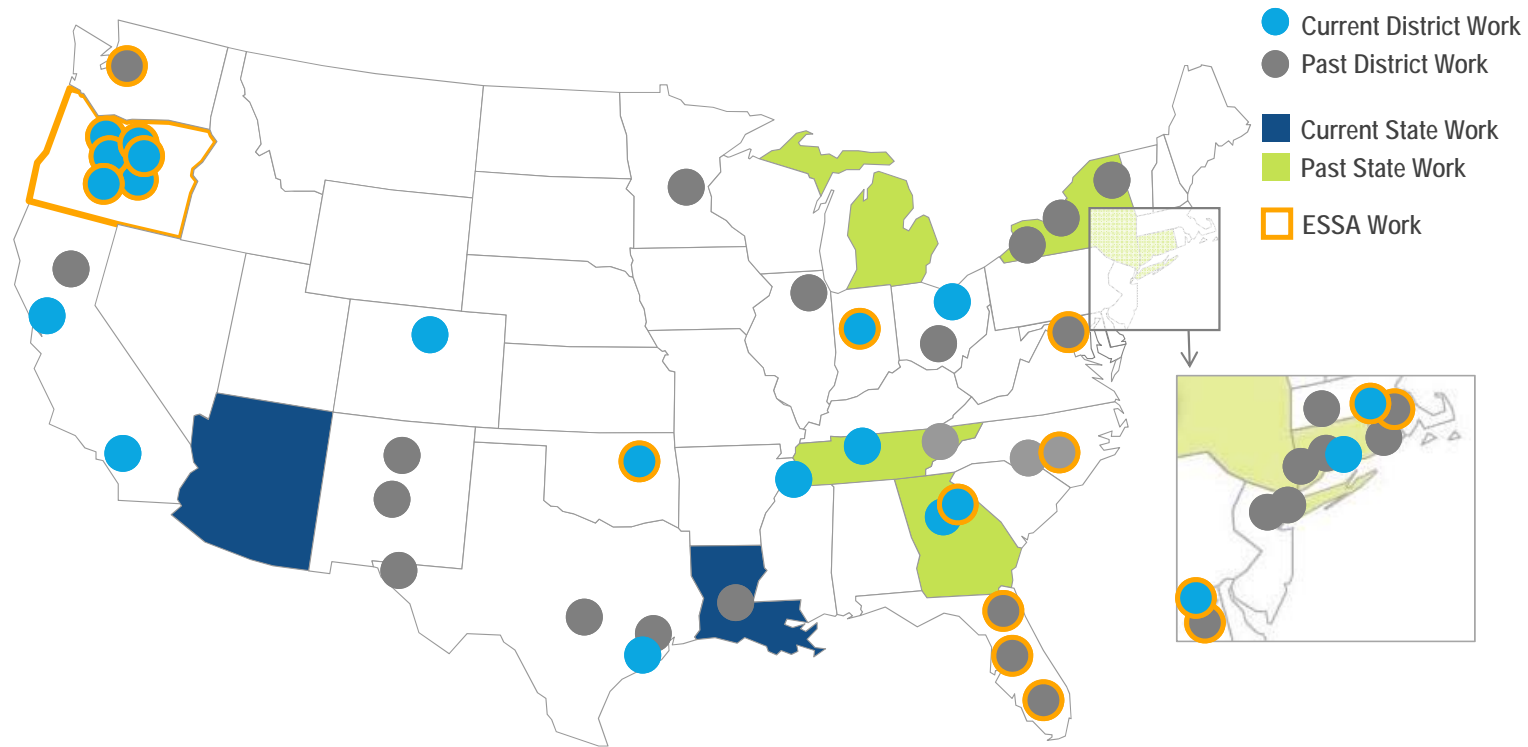
- This report explores how Montgomery County Public Schools (MCPS) allocates and uses resources to promote equity and excellence for all students.
- We looked across seven different **dimensions of equity** – from school funding, to teaching quality, to time and attention – to build a deeper understanding of equity in MCPS.
- Overall, we see that MCPS spends more on its highest-need students and schools, yet performance gaps exist across the student groups defined by MCPS' Equity Accountability Model.
- When we look at *how well* dollars are spent, we see there are opportunities to improve how MCPS organizes its resources at the system-, school-, and classroom-level to both improve equity for the students who are behind and raise the bar for all students.
- Money alone is not enough – money must be *used well* to make a difference.

Who is Education Resource Strategies (ERS)?

ERS is a **non-profit organization** dedicated to **transforming** how urban school systems organize **resources** (people, time, and money) so that **every school succeeds for every student.**



We partner with states and districts across the country to transform resource use so that every school succeeds for every student



Project Funding and Contact Information

- MCPS paid for \$310,000 of this partnership with ERS through a board-approved expenditure. The work was also subsidized (\$230,000) by a group of external funders, including the [Raikes](#), [Hewlett](#), and [Kellogg](#) Foundations.
- For more information on this study, please check out our website or reach out via email at AskMCPS@mcpsmd.org.

This report connects to MCPS' equity framework and vision for action

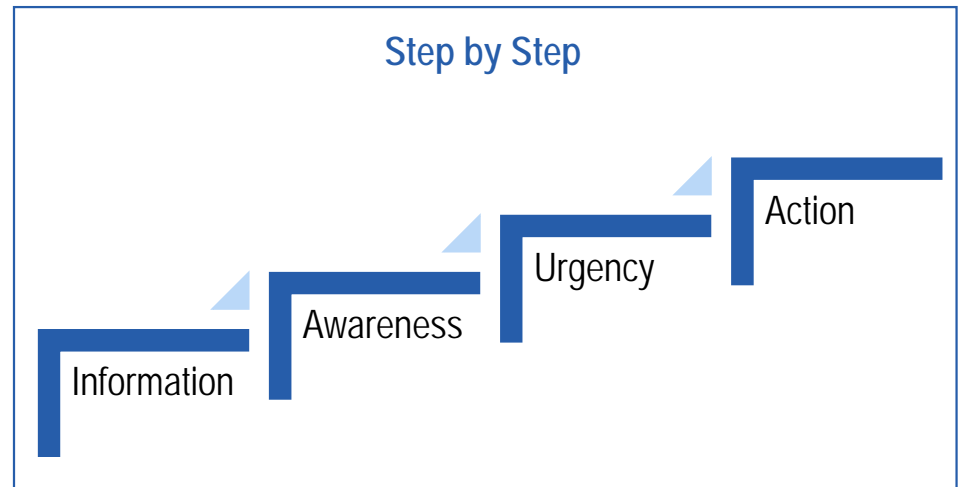
ALL IN: EQUITY AND ACHIEVEMENT FRAMEWORK

Evidence of Learning
www.montgomeryschoolsmd.org/evidence-of-learning-framework/
The Evidence of Learning (EOL) consists of multiple measures in classroom, district, and external categories that assess student learning allowing the district to monitor students progress at each level- primary, intermediate, middle, and high school with the goal of being college and career ready.
Are our students learning? Are they learning enough?

Equity Accountability Model
www.montgomeryschoolsmd.org/evidence-of-learning-framework/equity-accountability-model.aspx
The Equity Accountability Model (EAM) uses the Evidence of Learning (EOL) data to determine the impact schools have on the students who have typically not performed as well as their White and Asian peers. The EOL data results are organized by 5 focus groups- African American/Black FARMs, African American/Black non-FARMs, Hispanic/Latino FARMs, Hispanic/Latino non-FARMs and all other FARMs students. The district also measures and monitors the progress of Whites and Asians with the goal of 90% achievement among all student groups. If not why not? How do we know?

Equitable Access to Resources
The Equitable Access to Resources (EAR) portion of the Equity and Achievement Framework examines how well the system and schools are using staff, time and money as measured by student outcomes with emphasis on the performance of the 5 focus groups. The primary goal of a deep examination of system resource allocation and use is to reduce the likelihood that student outcomes are predictable by race or income.
What are we going to do about it?

STUDENT EXPERIENCE & OUTCOMES



This study connects to MCPS' overall equity journey by providing data on **equitable access to resources**.

We did not provide recommendations in this report – it is intended to establish a shared fact base that we hope will spark collective action in the MCPS community by increasing awareness and urgency.

MCPS partnered with ERS to analyze resource allocations in order to:

- Build a deep understanding of **resource allocation, use, and equity** across the district and within schools
- Build an understanding of **how MCPS compares** to other similar districts in resource allocation, use, and equity
- Share learnings on **promising practices** from schools that are achieving better student performance
- Create a **set of tools** that enable school and system leaders to **make informed decisions** about resource use that aim to improve the equitable and effective use of resources
- Identify considerations for **change or further study**
- Develop and implement an effective **communication and engagement plan** around per pupil spending and resource allocation and use

Our work focused on better understanding **resource equity** in MCPS

*Resource equity is the **allocation and use** of resources (people, time, and money) to create student experiences that enable all children to reach empowering, rigorous learning outcomes — no matter their race or income.*

Resource Equity | Key Concept #1

Equal isn't equitable



EQUALITY

Everyone gets the same thing.



EQUITY

Everyone gets what they need.

Resource Equity | Key Concept #2

It's about equity and excellence

Typical Practice

Equity Without Excellence

Equity AND Excellence

Student Performance



Gaps in student performance exist.



Student performance gaps are closed by raising the bar for some and lowering it for others.



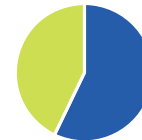
We close gaps AND raise the bar for all.

How do we move to equity AND excellence?

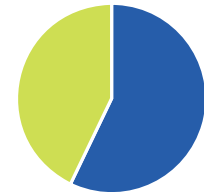
Resource Allocation and Use



Resources are distributed equally.



Resources stay the same, but get redistributed based on need.



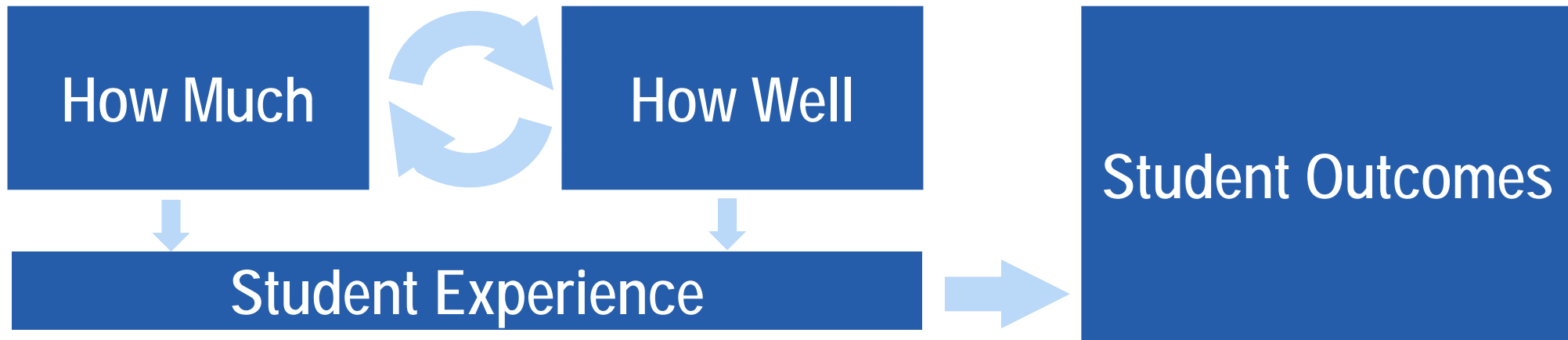
We use resources more effectively to expand the pie for all students – and give more to those that need it.

Resource Equity | Key Concept #3

It's about how much and how well

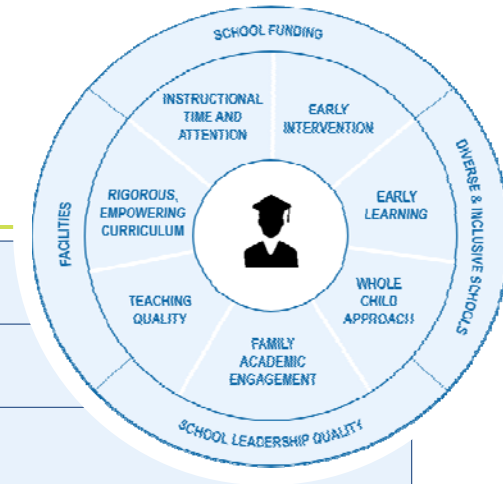
Inequities persist, even when funding increases.

How well those funds are used is critical to equitably improving student outcomes.



MCPS has a strategy of differentiating funding for higher need schools – but we know that more funding alone is not enough to change the student experience. To ensure equity and excellence for all, we need to understand how resources play out in schools and *how well* they are used in service of student outcomes.

Using research and our work with districts, ERS identified 11 dimensions of equity



School Funding

All students attend schools with **sufficient funding** to meet their needs, and those dollars are **used well**.

Teaching Quality

All students experience an **effective educator workforce** that **reflects student diversity**.

Instructional Time & Attention

All students get the **instructional time and teacher attention** they need to thrive.

Rigorous, Empowering Curriculum

All students are **held to high expectations** and have access to **rich and empowering** curriculum materials, coursework, and class offerings.

Diverse and Inclusive Schools and Classrooms

All students attend **schools and classes that are racially and socioeconomically diverse** and inclusive of English learners and students with disabilities.

Whole Child Approach

All students feel **engaged, respected, and like they belong** in school. They have the **academic, physical, and mental supports** they need to succeed in school and life.

School Leadership Quality

All students experience **effective school leadership** that raises the overall effectiveness of their entire teaching staff.

Early Intervention

All students receive the early interventions and academic, physical, and mental health supports they need **before they can fall behind**.

Early Learning

All students **start kindergarten ready to thrive**, and with a sound foundation for success.

Family Academic Engagement

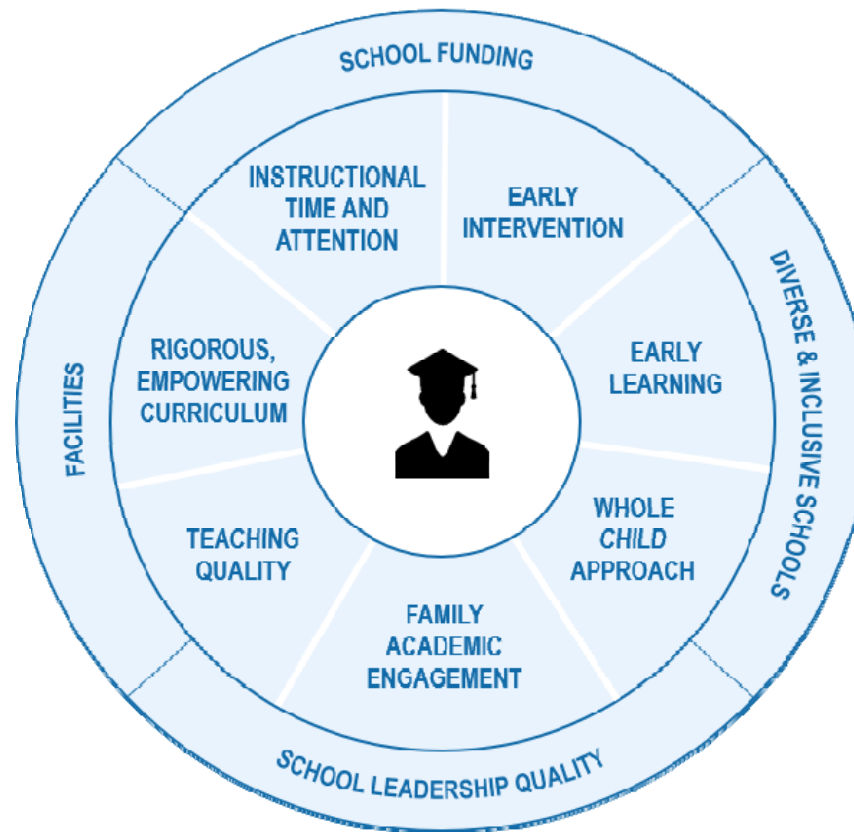
All families feel welcome and empowered **to meaningfully engage** in their child's school experience.

Learning-Ready Facilities

No student attends schools that are unsafe, unwelcoming, or otherwise **impede learning**.

Focus of
this report

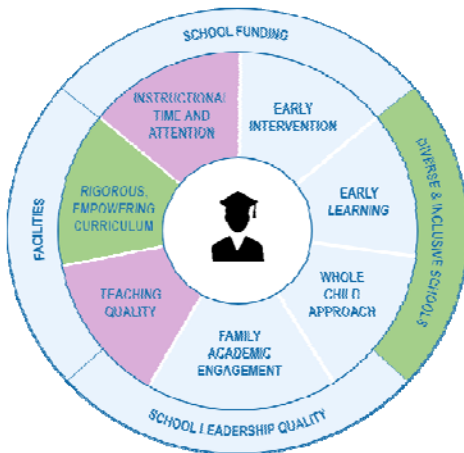
All dimensions of resource equity work together to shape the student experience in schools



Resource Equity | Key Concept #4

Dimensions are interconnected, not siloed

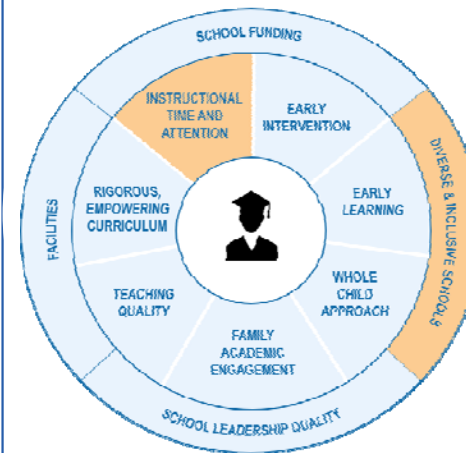
Looking at dimensions in silos may risk missing important connections across dimensions. For example:



Lowering group size to provide more targeted attention, but having a struggling teacher lead the group.

Creating heterogeneous classes, but not making sure students have differentiated supports they need to succeed.

Dimensions may be in tension with each other. For example:



Lowering group size to provide more targeted attention may result in more homogenous groups.

For these reasons, we look at the student experience across *all* dimensions to inform actions steps.

Key Terminology and Data Notes

- Unless otherwise noted, the year of data used for analysis is the **2017-2018 school year** (SY2017-2018).
- The analysis is organized around the student groups defined in **MCPS' Equity Accountability Model**. In this model, "**FARMs**" is used to denote students who receive free or reduced-price meals.

Monitoring student group

- Non-FARMs all other student groups (white, Asian, and other non-FARMs students)

Focus student groups

- Non-FARMs Black or African American students
- Non-FARMs Hispanic/Latino students
- FARMs all other student groups (white, Asian, and other FARMs students)
- FARMs Black or African American students
- FARMs Hispanic/Latino students

- **Higher-need schools** are defined as schools with a greater percent of FARMs students and may be referred to as "*Focus schools*" or "Impacted Schools". See appendix for more detail on school need designations.
- Performance data is based on **PARCC** English Language Arts (ELA) and math assessments; use of PARCC data allows for comparability across districts.
- Additional data and terminology notes are included in the Appendix.

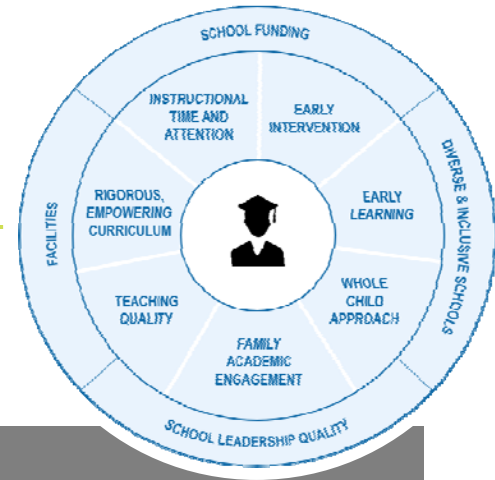
Summary of Study Insights

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers →

In MCPS, higher-need schools/students get **more**

In MCPS, higher-need schools/students get a **similar level**

In MCPS, higher-need schools/students get **less**



Dimension	Summary of Insights
Performance	Overall, MCPS outperforms other Maryland districts with similar levels of FARMs students – however not all student groups in MCPS experience this outperformance. Performance gaps still exist both across and within schools, particularly for FARMs students and students of color.
School Funding	MCPS spends more on its highest-need schools and students, resulting in more staff per student at higher-need schools. This ‘extra’ investment in high-need schools is more than we see in peer districts.
Teaching Quality	In MCPS, <i>Focus</i> group students are more likely than <i>Monitoring</i> group students to spend time with novice teachers and less likely to spend time with teacher leaders, National Board Certified teachers, and teachers with advanced degrees. Principals report mixed results on practices related to teacher support and teacher collaboration.
Instructional Time and Attention	On average, higher-need schools have lower class sizes than lower-need schools, but there is significant variation in class sizes across schools. Some schools differentiate class sizes and time for priority subjects, grade levels, and students, but these practices are inconsistent.

Summary of Study Insights *Continued*

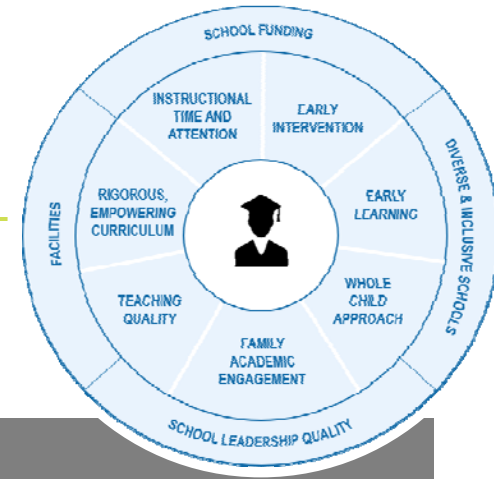
Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers



In MCPS, higher-need schools/students get **more**

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In MCPS, higher-need schools/students get **less**



Dimension	Summary of Insights
Rigorous, Empowering Curriculum	Enrollment in advanced course pathways decreases for all student groups over the course of elementary and middle school, suggesting that students are not getting the supports they need to succeed. <i>Focus</i> group students are less likely to be enrolled in advanced coursework, even compared to peers with the same incoming performance.
Diverse and Inclusive Schools and Classrooms	Students tend to be grouped in classes with peers of similar performance levels, limiting access to heterogeneous classes.
Whole Child Approach	Principals report low usage of 'Tier 1' practices that support social-emotional learning for all students.
School Leadership Quality	MCPS principals recommend working in MCPS more than principals in peer districts, suggesting higher levels of job satisfaction. Higher-need schools are more likely to be led by novice principals than lower-need schools. Principals report both strengths and opportunities for improvement regarding central office support.

How to read and use this report

- First, this report summarizes analysis of **student performance** in MCPS. Then, it explores each of the **equity dimensions**.
 - Each section starts with an 'At a Glance' slide that summarizes the vision of each dimension, why this dimension is important, and the study insights
 - Each section ends with questions for consideration based on study insights

- You will see **green sidebars** on the right of most slides that highlight:



Context

What did we look at and why?

Context notes are included at the beginning of individual slides or sections of slides to introduce key concepts



Explore

What does the data show us?



Consider

What questions or next steps does this data raise?

Considerations are included at the end of individual slides or sections to encourage reflection on the data. Some slides do not include considerations because there is additional data (on the following slides) that should be taken into account before turning towards considerations.

- Refer to the Appendix for information on:
 - Descriptions of ERS-specific terminology or methodology
 - External research related to the importance of each dimension

Comparison Data

- The analysis in this report includes comparative data points from other districts across the country that ERS has partnered with. These peer districts are all relatively large, urban districts that share similar demographics, including poverty, English Learner, and special education student populations.
- We use these comparison districts as a way to help understand and interpret MCPS' data and identify areas for further inquiry. However, these peer districts are not intended to be a benchmark for MCPS.

Comparison districts include:

- Austin, TX
- Boston, MA
- Baltimore City, MD
- Charlotte, NC
- Fulton, GA
- Los Angeles, CA
- Palm Beach, FL
- Shelby County (Memphis), TN



Performance



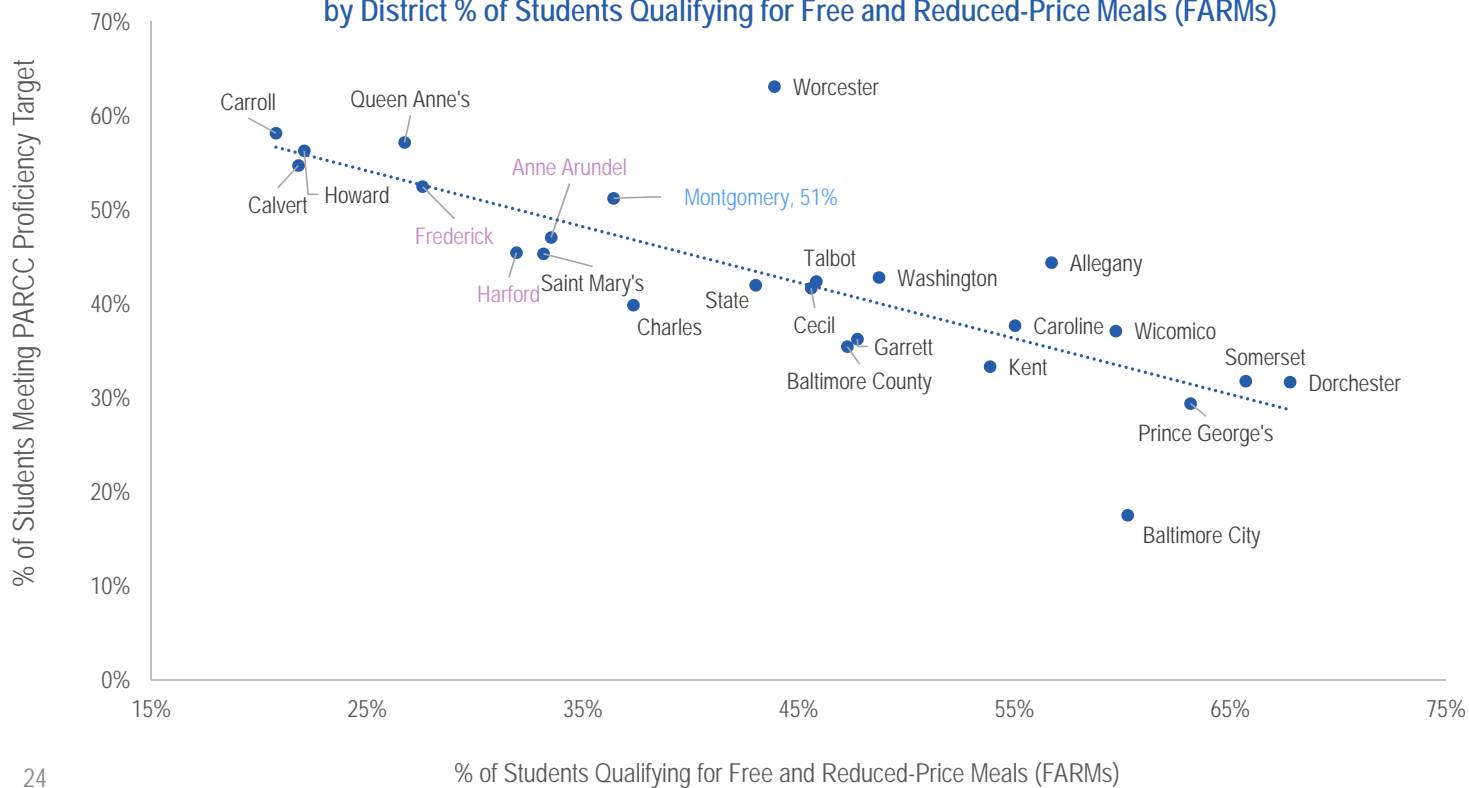
Performance: At a Glance

Study Insights

- At an aggregate level, MCPS outperforms districts with similar levels of students in poverty. However, using the new student groupings defined in MCPS' Equity Accountability Model, we see that white and Asian students who are not in poverty drive a greater share of this outperformance.
- MCPS' performance landscape is a result of performance differences both *across* schools and *within* schools.
 - *Across schools*: Like most districts across the U.S., high-poverty schools in MCPS have lower performance than low-poverty schools.
 - *Within schools*: Unlike most districts studied across the U.S., in MCPS, African American and Hispanic FARMs students who live in poverty but attend more affluent schools do not perform significantly better than their peers in schools with higher concentrations of poverty.

Overall, MCPS' performance is higher than other MD districts with similar levels of students in poverty

Overall % of Students Scoring Proficient or Higher on 2018 PARCC English Language Arts (ELA) Assessment, Grades 3-8 by District % of Students Qualifying for Free and Reduced-Price Meals (FARMs)



Context

Across Maryland, school districts with *lower* percentages of students who receive free and reduced-price meals (FARMs) had *higher* percentages of students who score proficient or better on the 2018 PARCC ELA assessment. This trend is shown in the graph to the left.

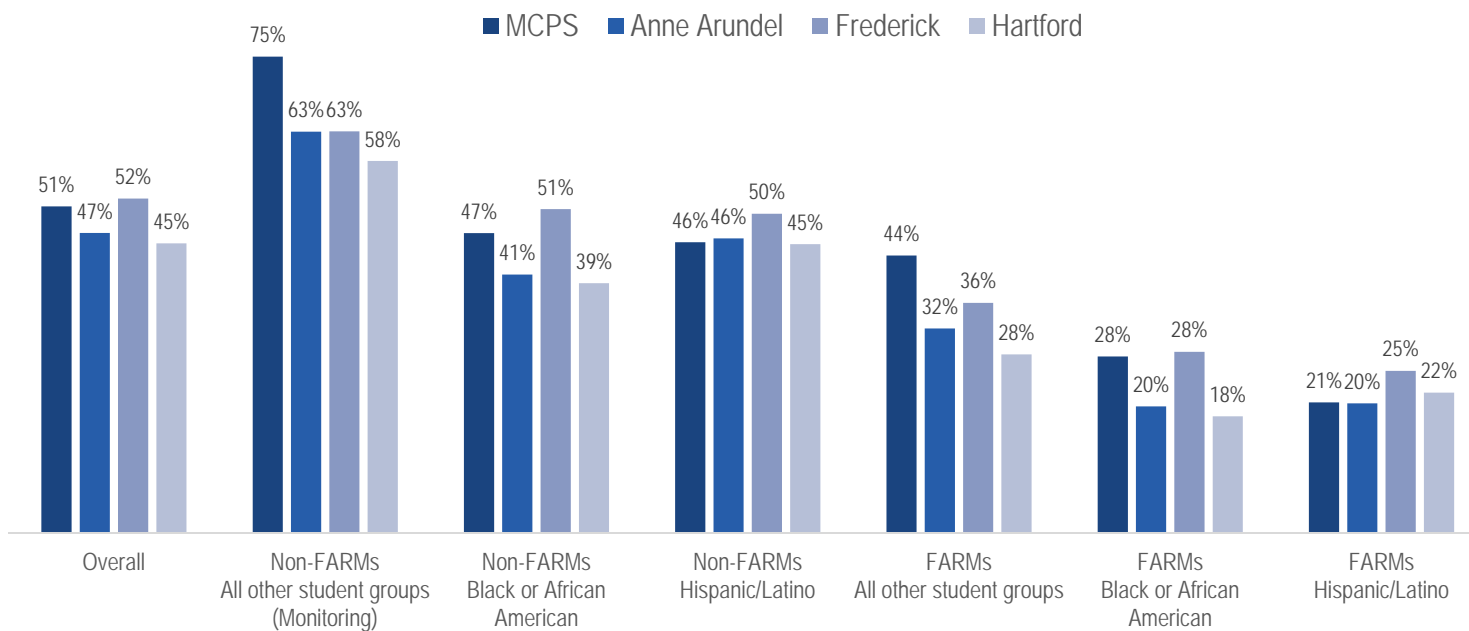


Explore

In the graph to the left, MCPS is above the dotted blue trend line, suggesting that MCPS' performance is **better** than expected, given its percentage of FARMs students.

However, only certain groups of students outperform peer MD districts

Percent of Students Proficient on 2018 PARCC ELA by Student Group, Grades 3-8



% of MCPS students:

44%	10%	10%	5%	12%	20%
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Context

The data to the left shows the breakdown of performance across MCPS' six student groups from its Equity Accountability Model, compared to the same student groups from three other MD districts that have similar levels of FARMS students.



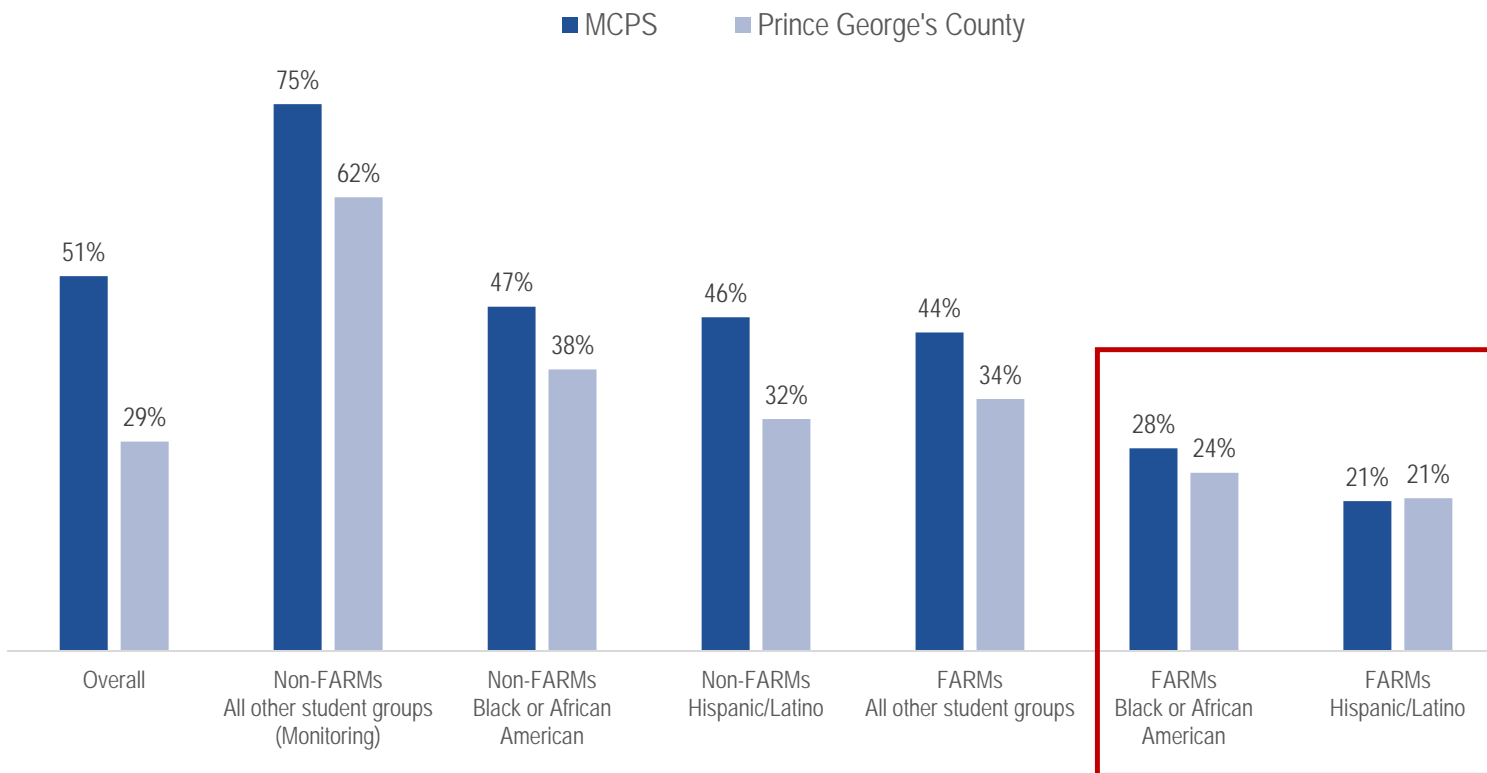
Explore

This data shows that some MCPS student groups outperform peers from other Maryland districts more than other groups do. For example, 75% of MCPS' *Monitoring* group students are proficient—more than 10 percentage points higher than in peer Maryland districts. However, similar to those districts, MCPS needs to make significant gains with students of color and students in poverty. Only 21% of MCPS' Hispanic FARMS students are proficient.

This data shows a relationship with performance **by both poverty and race**. Non-FARMS student groups perform better than FARMS student groups, and non-black and Hispanic student groups (comprised of mostly white and Asian students) perform better than their black and Hispanic peers.

African American and Hispanic FARMs students in MCPS perform similarly to students in Prince George's County

Percent of Students Proficient on 2018 PARCC ELA by Student Group, Grades 3-8



Context

In the previous slide, we compared MCPS' performance with three MD districts that have similar levels of FARMs students (Anne Arundel, Frederick, and Hartford).

In this slide, we compare MCPS' performance to Prince George's County, a district with a much higher percentage of FARMs students:

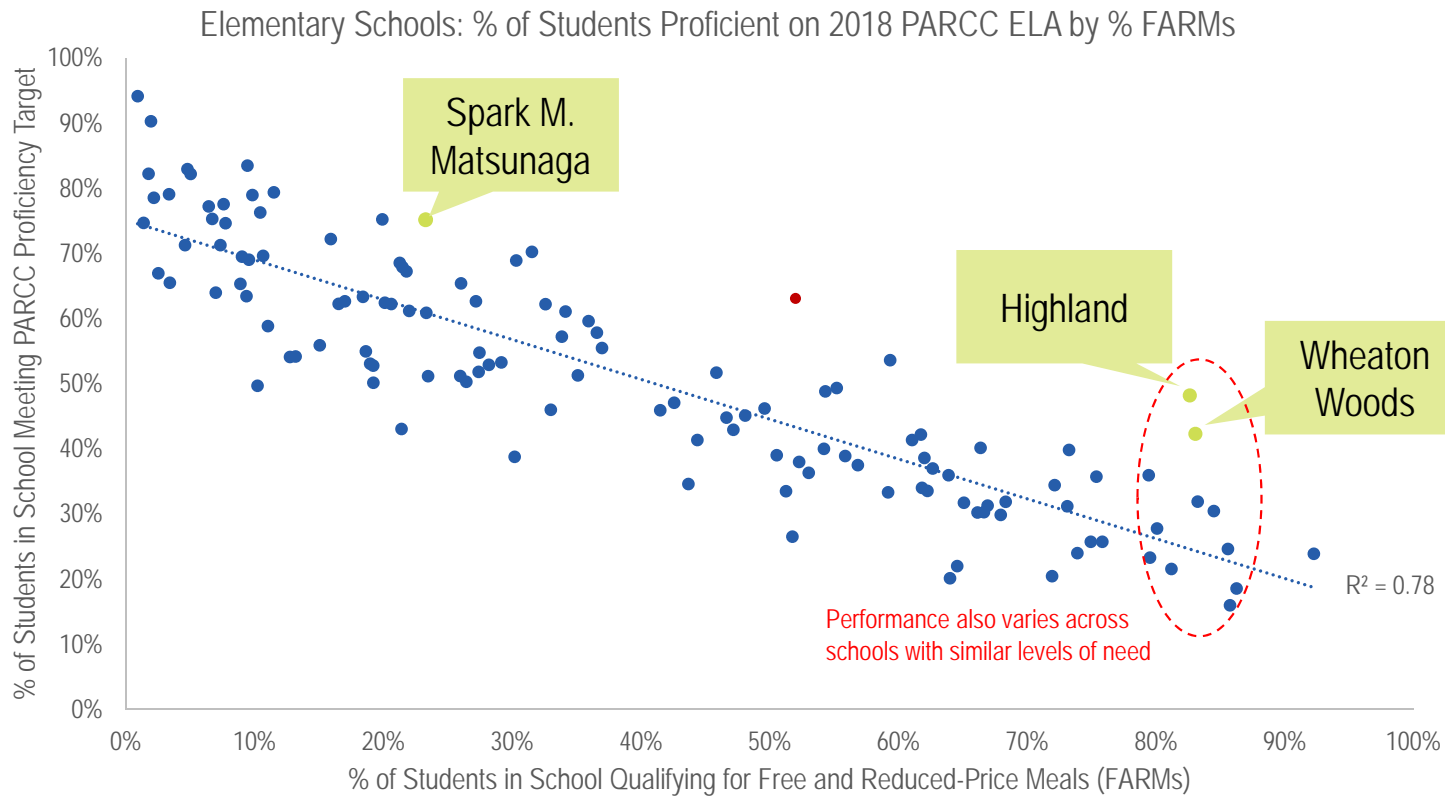
- MCPS % FARMs: 36%
- Prince George's County: 63%



Explore

This data shows that while some MCPS student groups outperform peer students in Prince George's County, black and Hispanic FARMs students in MCPS **perform similarly** to their peers in Prince George's County.

Across schools in MCPS, higher-poverty schools perform worse than lower-poverty schools



Context

To better understand the performance landscape in MCPS, we looked at how performance varies *across schools* and then *within schools*.

Here, we look at performance *across* schools: we look at the relationship between concentration of poverty (% FARMs students) in a school and ELA performance across MCPS elementary schools.



Explore

This chart shows that there is a strong correlation between school % FARMs and student performance. Schools with a **higher concentration of FARMs students** are more likely to **have lower performance**. This trend between % FARMs and performance is the same trend we saw across other Maryland districts, and is a trend we see with districts and states nationwide.

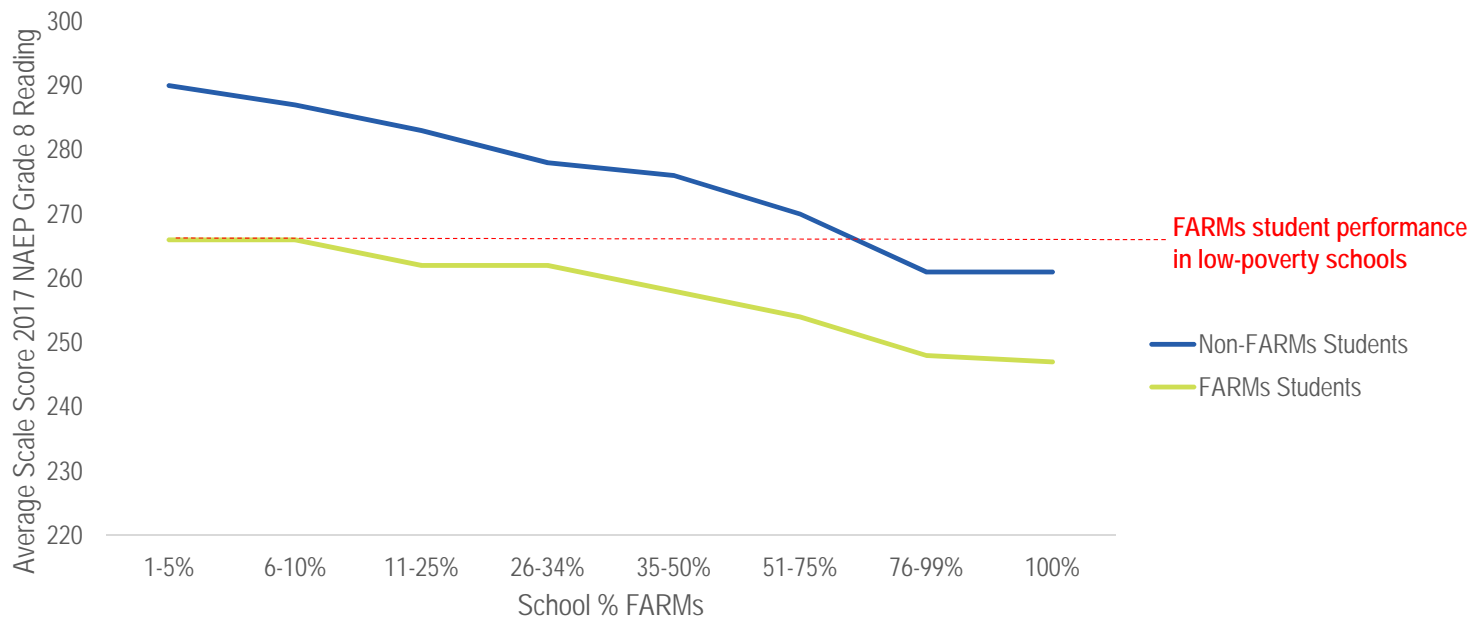
Note that while the relationship between school need and student performance is strong, we also see significant variation across schools with similar levels of need. We studied three schools above the trendline (Matsunaga, Highland, and Wheaton Woods), to gain insight into potential promising practices across these schools. While these schools were not the only outliers, they stood out as schools that achieve these results while serving only their local student populations. For example, the school represented by the red dot also outperforms its peers with a similar level of poverty (~50% FARMs), but it has a Gifted and Talented program that extends beyond its regular attendance area.

For more information on the promising practices we identified in Matsunaga, Highland, and Wheaton Woods, see the appendix.

Nationally, FARMs students in low-poverty schools outperform all students (both FARMs and non-FARMs) in high-poverty schools

National Data:

Average Scale Score on 2017 NAEP Grade 8 Reading Assessment by School % FRL (National Average)



Context

We wanted to understand how performance across schools might differ by student group. First, we looked at national data to understand the landscape.



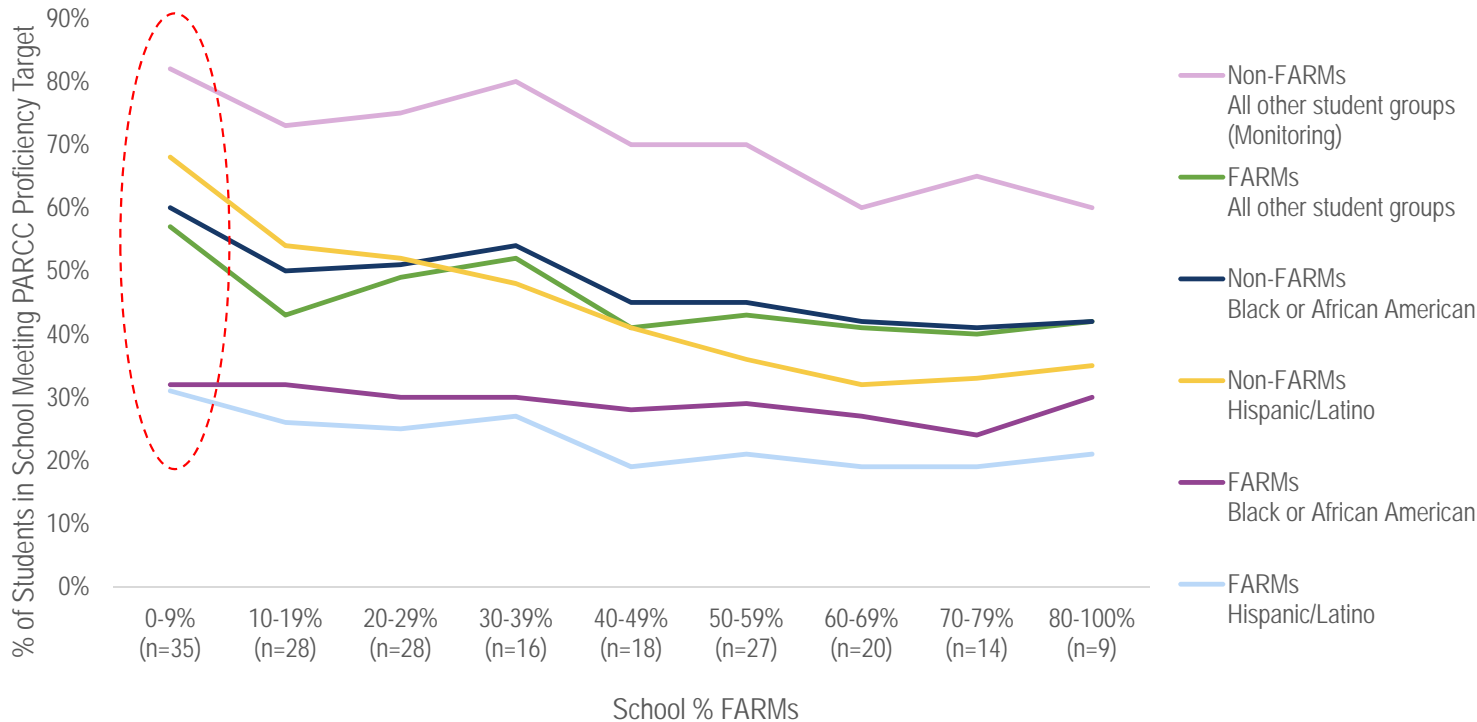
Explore

This data compares FARMs and non-FARMs student performance across levels of school need. For example, in schools with less than 5% FARMs, non-FARMs students have an average scale score on NAEP of ~29, compared to FARMs students who have an average scale score of ~27.

Looking across the chart from left to right, we see that all students perform better in low-poverty schools. In particular, FARMs students in low-poverty schools perform better than both FARMs *and* non-FARMs students in high-poverty schools..

In MCPS, African American and Hispanic FARMs students *do not* perform substantially better in low-poverty schools

Percent of Students Proficient on PARCC 2018 ELA by Student Group and School % FARMs (All School Levels)



Explore

This data compares student group performance across levels of school need. This data shows that the trend we just saw nationally – that FARMs students perform better in lower-need schools – is **not true** for all student groups in MCPS. Specifically, in MCPS, African American and Hispanic FARMs students **do not** perform substantially better in low-poverty schools.



Consider

This contrast between MCPS and national trends prompted questions about what might be different or unique about what takes place in MCPS schools that contributes to this result.

This understanding of the performance landscape in MCPS – about both *across* and *within* school factors – shaped the remaining analysis in this report. This analysis is organized to assess both ‘across’ and ‘within’ school factors across our dimensions.



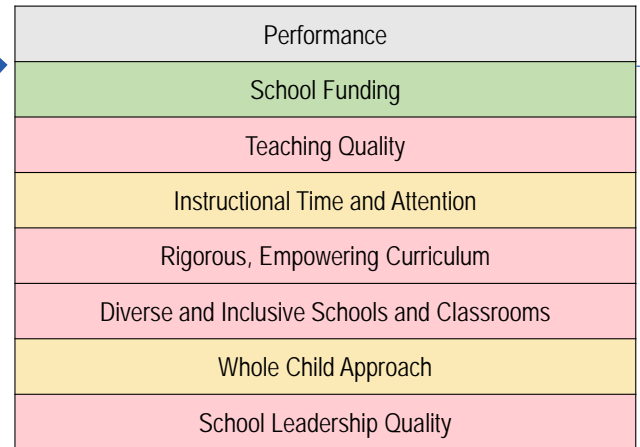
Performance: Key Questions

- Given the performance landscape, how can we organize resources across all dimensions to support schools to serve our students better?

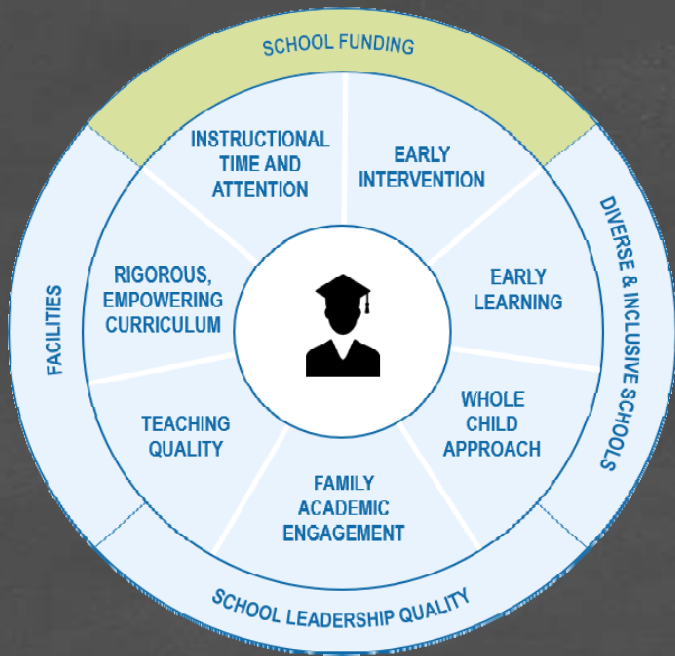
Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

- In MCPS, higher-need schools/students get **more**
- In MCPS, higher-need schools/students get a **similar level**
- In MCPS, higher-need schools/students get **less**

You are here



Dimensions of resource equity



Dimensions of Resource Equity

School Funding



School Funding: At a Glance

Vision: All students attend schools with sufficient funding to meet their needs.

<p>Why it Matters</p>	<p>Money matters for schools and students. Additional funding may be required to support students who have more intensive learning needs.</p> <p>But money alone is not enough. Equitable school funding can enable equitable access to many of the resources described in this report and can lead to accelerated learning <i>when those dollars are used well.</i></p>
<p>How it's Assessed</p> <p><i>*Indicates topics addressed in our study</i></p>	<ul style="list-style-type: none"> • Adequacy of funding • Differentiation in funding by student populations and levels of school need* • The types of resources that we invest in*
<p>Study Insights</p>	<ul style="list-style-type: none"> • Per pupil spending varies greatly across schools; some schools spend twice as much as other schools. Three key factors that influence how much a school spends are: (1) student need (students with disabilities, English learners and poverty), (2) school enrollment, and (3) average teacher compensation. • MCPS provides more incremental funding for students and schools in poverty than peer districts across the nation. • MCPS' incremental poverty investment is more significant in elementary schools, compared to middle and high schools. • MCPS' incremental poverty investment results in more staff members at higher-need schools, primarily in teaching positions.

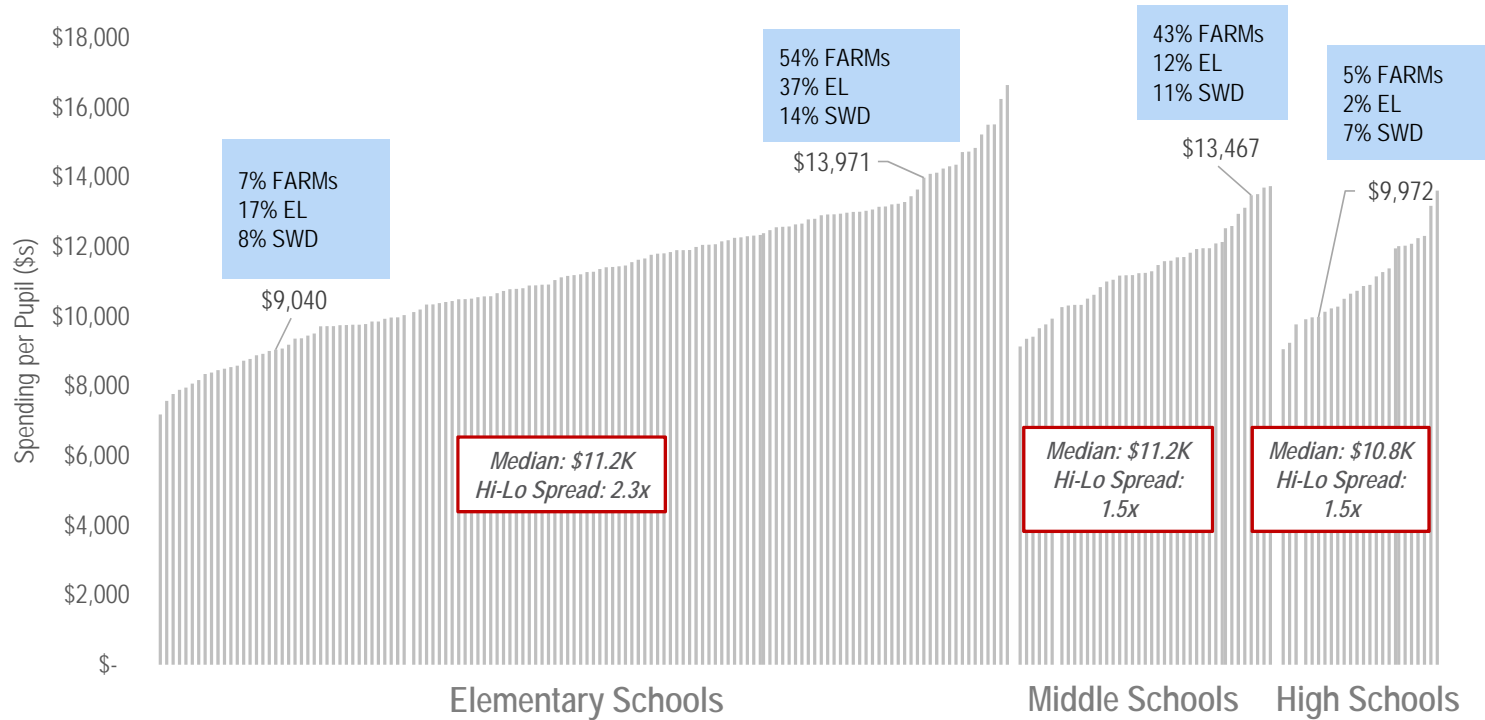
Per pupil spending and student need vary widely across schools in MCPS



The first step to understanding school funding is to calculate the **per pupil spending** at each school. The data to the left shows the dollar per pupil spending at each school in MCPS. We can see that spending by school varies greatly: some schools spend more than twice as much as others. However, this data on its own doesn't help us understand school funding equity, since we also see that student need varies across schools.

For this reason, we must better understand what factors (including student need) drive differences in spending across schools to help us assess if those drivers match our vision for equitable school funding.

School Year 17-18 Dollar Per Pupil Spending By School



Source: MCPS SY17-18 Expenditures, ERS analysis. Excludes Special/Alternative Schools, New 18/19 Schools. Dollars include all school attributed dollars. See appendix for detailed definition of dollars that are included. *FARMS*: students eligible for free and reduced meals. *EL*: English Learners. *SWD*: students with disabilities.

Common drivers of variation in school spending

Driver	Typical Magnitude of Impact on School Spending	Explored further in this report?
Student Need		
% Students with Disabilities (SWD)	High	Yes
% English Learners (EL)	Medium	Yes
% Poverty (FARMs)	Medium	Yes
Other student needs	Low	No
District Strategy		
School opening/closure	Low	No
School level (e.g. elementary, middle, high)	Low	No
School type (e.g. magnet, gifted, etc.)	Low	No
Unplanned		
School Enrollment (school size)	High	Yes
Teacher Compensation	Low	Yes
Building Utilization	Low	No
Enrollment Projections	Low	No
Ad-hoc exceptions	Low	No



Context

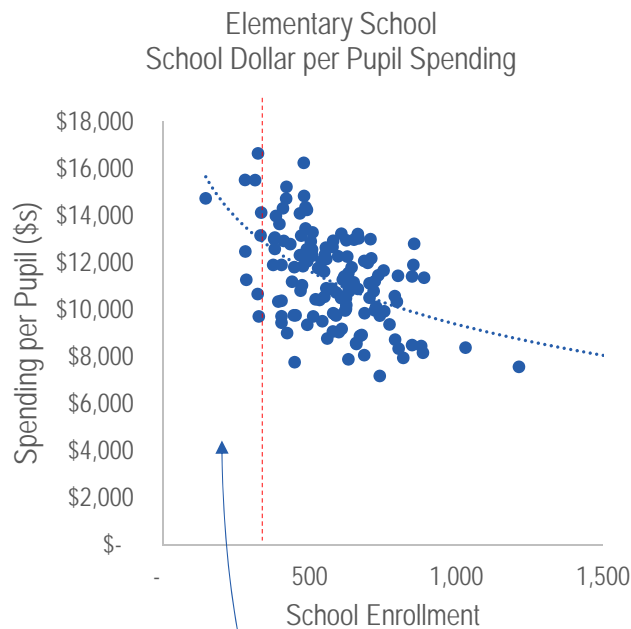
In ERS' work with districts across the country, we have identified common factors that lead to variation in spending across schools. These factors can be related to student need, district strategy, or unplanned reasons. In MCPS, we found and explored **three key factors** for differences in school spending:

- student need
- school enrollment
- average teacher compensation.

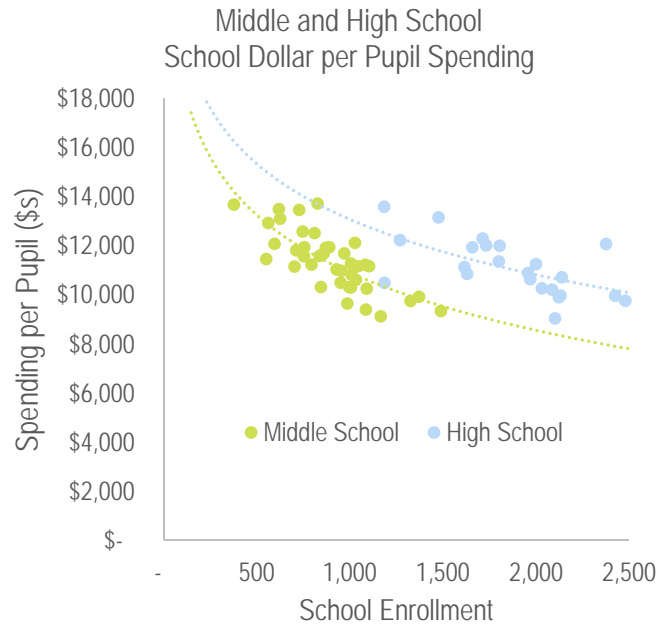
Variation in spending due to these factors isn't 'good' or 'bad' on its own. Instead, we seek to understand the ways in which the additional spending:

- is deliberate
- matches MCPS' priorities,
- might be unintentional or go against our priorities

Smaller schools spend more per pupil than larger schools across all school levels



Elementary schools with < 350 students spend \$2K more per pupil than larger schools on average – \$6.6M total



Context

In most districts, schools with lower enrollment spend more per pupil than larger schools. This happens for two reasons:

- (1) There are certain fixed costs of running a school, regardless of size – e.g. typically all schools need a principal or a secretary.
- (2) There are increased instructional costs that come from having fewer students per grade level. Smaller schools (with smaller grade level sizes) are more likely to trigger the need for additional staff to meet class size or staffing ratios, simply because they have fewer options for ‘smoothing out’ class sizes across their school.

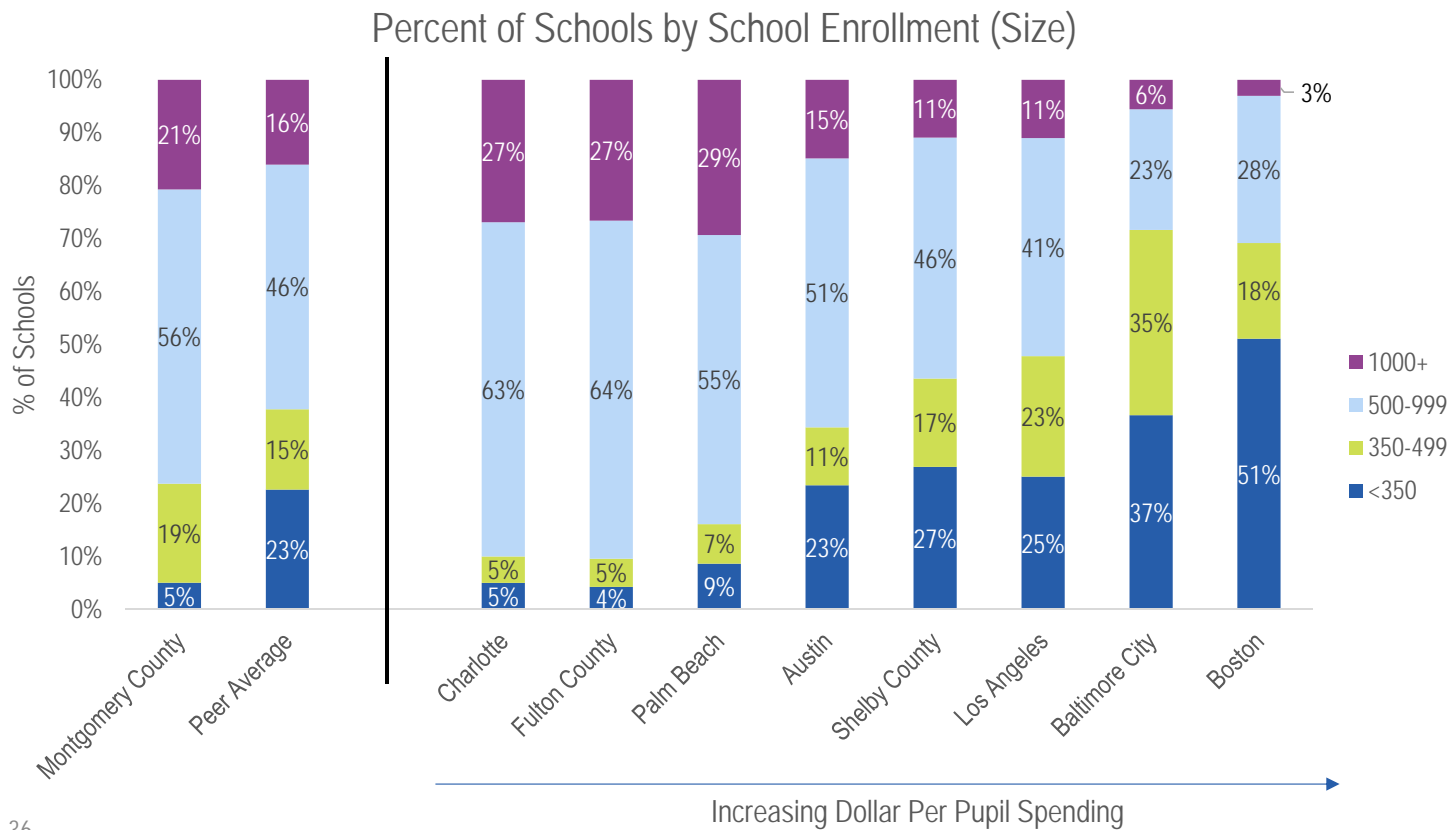
Just because smaller schools spend more, doesn't mean that districts should not have small schools. Instead, it means that districts need to acknowledge and consider the additional financial investment required to run small schools when thinking about school funding across their portfolio



Explore

The data to the left shows that this trend is true in MCPS – across all school levels, **smaller schools spend more per pupil** than larger schools.

However, MCPS has a lower share of small schools compared to peers



Source: MCPS SY17-18 Expenditures, ERS analysis; ERS benchmark database



Context

To help us understand the relative impact of small schools in MCPS, we can compare MCPS to peer districts. These peer districts are all relatively large, urban districts that share similar student demographics. As a reminder, we use comparison districts to help us understand and interpret MCPS' data and identify areas for further inquiry. Peer districts are not intended to be a benchmark or best practice.



Explore

Although small schools spend more, we see that MCPS has a **lower share** of small schools than peer districts: in MCPS, only 5% of schools have fewer than 350 students. This suggests that for MCPS, addressing small schools may not a big lever for improving funding equity.

School size does not differ significantly between lower and higher need schools

Elementary School: School Enrollment by Percent of FARMs Students



Context

One other way of understanding the impact of small schools on school funding equity is exploring if certain types of schools are disproportionately small. For example, if all of your highest-need schools were also your smallest, then it could look like you're providing additional investment to your highest-need schools, when in fact, the additional investment comes from size, not need level.



Explore

This data shows school enrollment by % FARMs for all elementary schools. We focused on elementary schools because it was the only level that included schools with fewer than 350 students. We see that there is **no clear relationship** between enrollment and % FARMs, suggesting that school enrollment does not disproportionately impact schools by need level. However, We also see that enrollment varies the most across non-focus schools and that MCPS' smallest and largest schools are non-focus schools.



Consider

Small schools tend to cost more per pupil, but given the data on total number and distribution, it did not seem like a critical area for potential action.

Next, we explore how student need impacts school funding

How much do we spend?

\$2.5B

SY17-18 Expenditure

Who do we serve?

All Students

Students in Poverty

English Learners (ELs)

Students with Disabilities

What do we spend it on? (examples)

- Classroom teachers
- School administrators
- District administrators
- Support staff
- School operations
- Materials and supplies

- Focus and Academic Intervention teachers
- Extra classroom teachers
- Focus paraeducators

- ESOL teachers
- ESOL paraeducators

- Special education teachers and paraeducators



Context

To understand how student need impacts school funding, we explored how MCPS invests resources in **different student populations**. To do this, we looked at the full SY17-18 expenditures and identified which expenditures were intended for which student populations. For example – some investments serve all students (e.g. principals), while others are intended to serve only certain student populations (e.g. ESOL teachers). Taking this step helped us identify total **dollar investment by student population**.

Compared to peer districts, MCPS spends more overall per general education student and differentiates spending more for students in poverty and students with disabilities



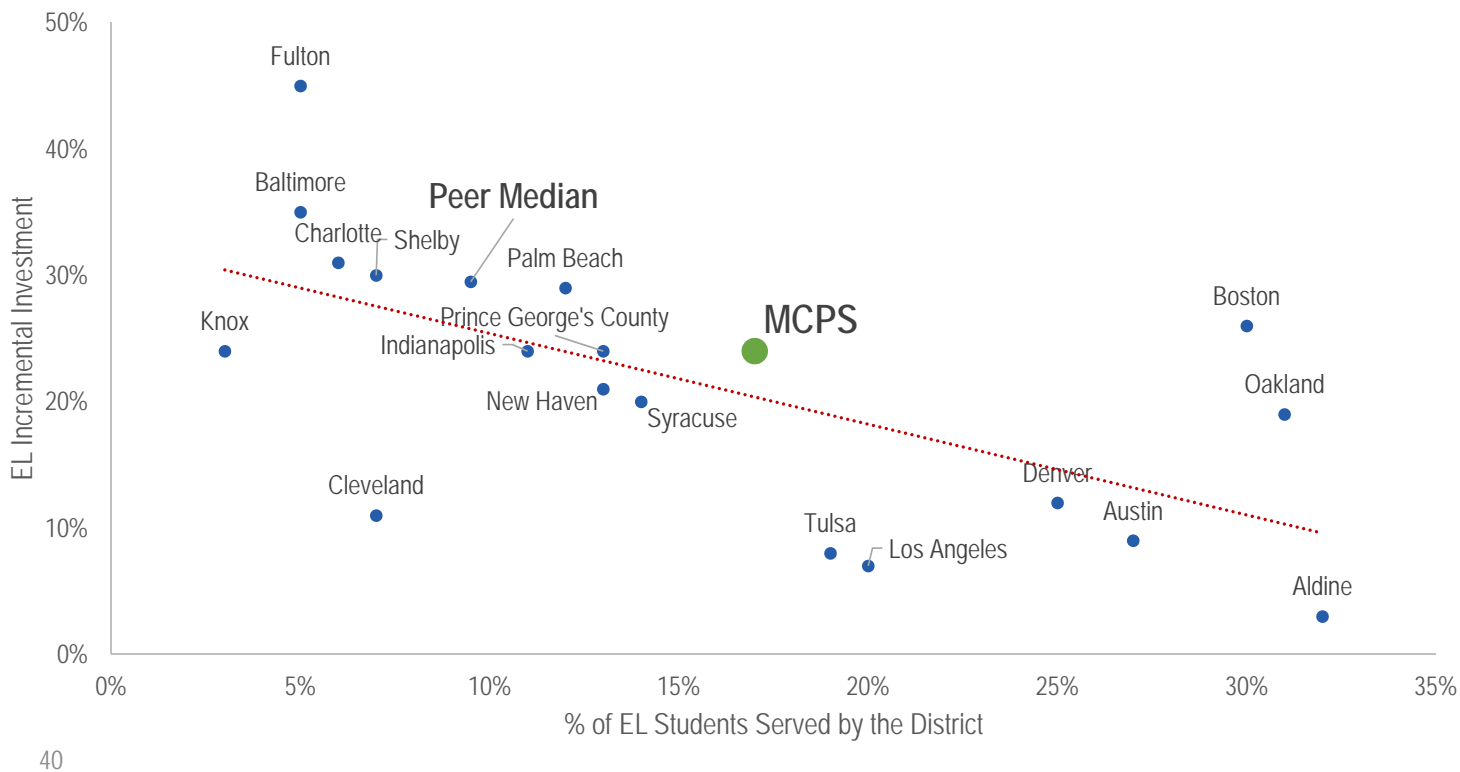
This data table shows the amount that MCPS spends on different student populations compared to peer districts across the United States. Using the first row in the table as an example, MCPS spends \$10.9K per general education student, which is \$700 per pupil more than the median peer district. MCPS invests an additional 14% or \$1.5K (14% multiplied by \$10.9K = \$1.5K) on its FARMS students. This incremental investment in FARMS student is 5 percentage points more than the median peer district.

This data shows us that MCPS spends **more overall** per general education student, and **differentiates spending more** for students in poverty and students with disabilities. We also see that while MCPS differentiates spending for English learners, the level of differentiation is lower than in other peer districts across the U.S.

District	General Education Base	Incremental poverty (FARMS) Investment		Incremental EL Investment		Incremental SWD Investment	
	(\$000s)	(\$000s)	%	(\$000s)	%	(\$000s)	%
MCPS	\$10.9	\$1.5	14%	\$2.6	24%	\$19.3	177%
Peer Median	\$10.2	\$0.9	9%	\$3.0	30%	\$15.1	170%
<i>Difference Between MCPS and Peer Median</i>	<i>\$0.7</i>	<i>\$0.6</i>	<i>5%</i>	<i>(\$0.4)</i>	<i>(5%)</i>	<i>\$4.2</i>	<i>7%</i>
Charlotte	\$9.0	\$1.5	17%	\$2.8	31%	\$10.4	115%
Fulton County	\$8.7	\$0.8	9%	\$3.9	45%	\$15.1	173%
Palm Beach County	\$10.2	\$0.7	7%	\$3.0	29%	\$11.1	109%
Austin	\$9.1	\$0.8	9%	\$0.8	9%	\$15.1	166%
Shelby County	\$10.2	\$1.2	12%	\$3.1	30%	\$12.2	120%
Los Angeles	\$10.2	\$0.9	9%	\$0.7	7%	\$20.8	204%
Baltimore City	\$11.3	\$0.9	8%	\$4.0	35%	\$23.7	210%
Boston	\$13.4	\$0.7	5%	\$3.5	26%	\$28.5	213%

Incremental English Learner (EL) Investment: Given the size of MCPS' EL population, MCPS differentiates EL spending similarly to predicted spending

Percent of EL Students vs. EL Incremental Investment



Source: MCPS SY17-18 Expenditures, ERS analysis; ERS benchmark database



Context

On the previous slide, we saw that MCPS' incremental investment in English Learners as a percent of general education spending was lower than the median of peer districts. One factor that can impact a district's investment in ELs is the size of the EL population in the district.



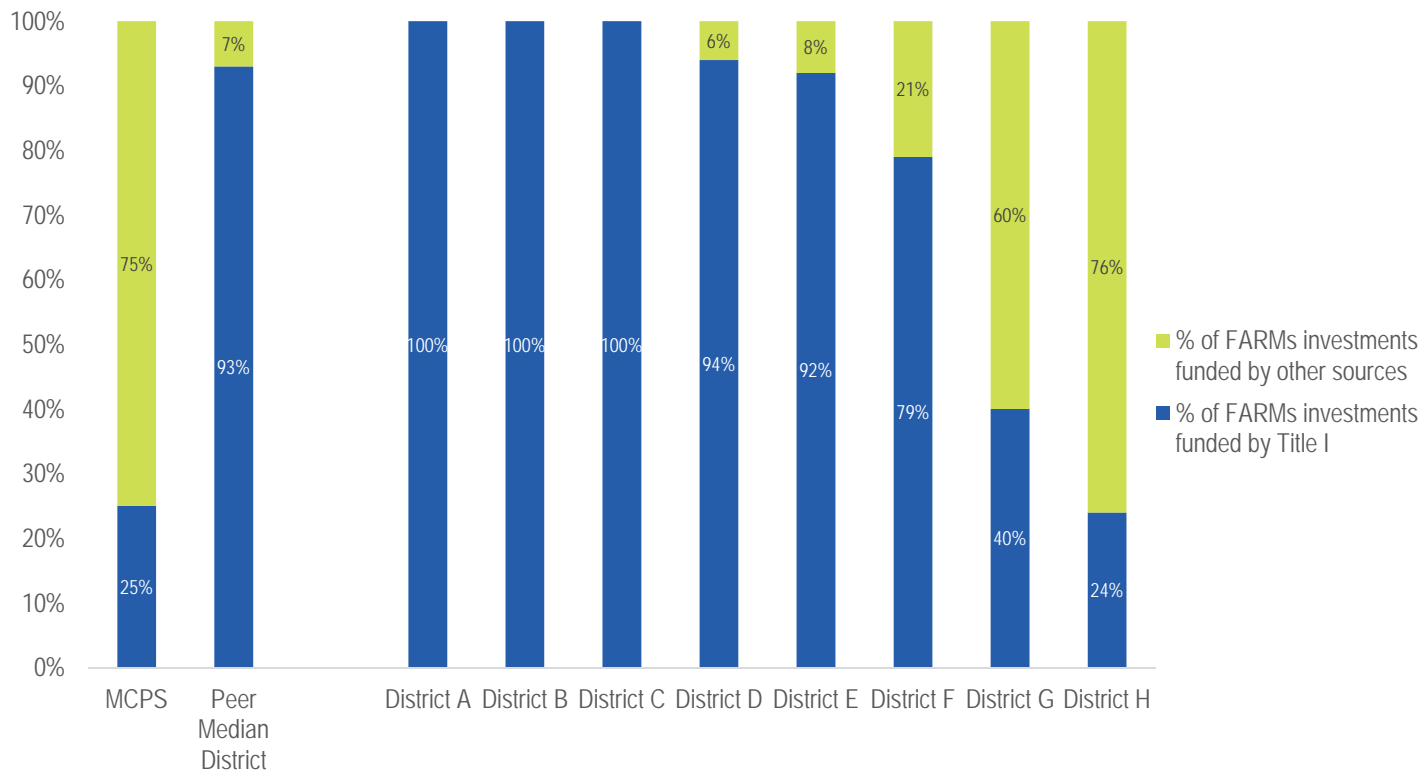
Explore

The data to the left shows how **incremental EL spending** across districts varies by the size of the EL population. As districts serve a higher percentage of ELs, the incremental EL investment decreases. This may happen because of economies of scale – that is, all districts, regardless of the size of their EL population, may need to have a base set of resources to support their EL students. As the EL population increases, the base set of resources stays the same, lowering the EL cost per pupil.

From this chart, we see that the data point for MCPS is close to the trend line, suggesting that MCPS' incremental investment for EL students is **consistent** with other districts, given the size of MCPS' EL population.

Incremental poverty (FARMS) Investment: MCPS' higher incremental spending on FARMS students is driven by a larger investment of non-Title I dollars

FARMS Investment by Funding Source



Source: MCPS SY17-18 Expenditures, ERS analysis; ERS benchmark database.
This data does not include \$4.1M of poverty investments in PreK for MCPS.



Context

We saw earlier that MCPS' incremental investment for students in poverty students was higher than the median peer district. Now, we will explore what drives that higher investment and how the investment is used.



Explore

This data shows that 75% of MCPS' investment in FARMS students and schools comes from **non-Title I funds**. This is different from most peer districts, where the majority of their FARMS investment comes from Title I funds.

This shows that MCPS is targeting more of its own general funds specifically toward FARMS students and schools and reflects the strong financial commitment MCPS has made to differentiate funding for higher-need schools.

MCPS' incremental investment in FARMs students is targeted to elementary schools: ES receive 2x more incremental FARMs investments than MS and HS

District	General Education Base (\$000s)	Incremental FARMs Spend (% of Gen Ed Base)
MCPS	\$10.9	14%
• MCPS ES		19%
• MCPS MS/HS		8%
Peer Median	\$10.2	9%
Charlotte	\$9.0	17%
Fulton County	\$8.7	9%
Palm Beach County	\$10.2	7%
Austin	\$9.1	9%
Shelby County	\$10.2	12%
Los Angeles	\$10.2	9%
Baltimore City	\$11.3	8%
Boston	\$13.4	5%

Of the \$87M incremental dollars MCPS invests in students living in poverty, **74% goes towards elementary schools**, which serve **54% of all FARMs students**.

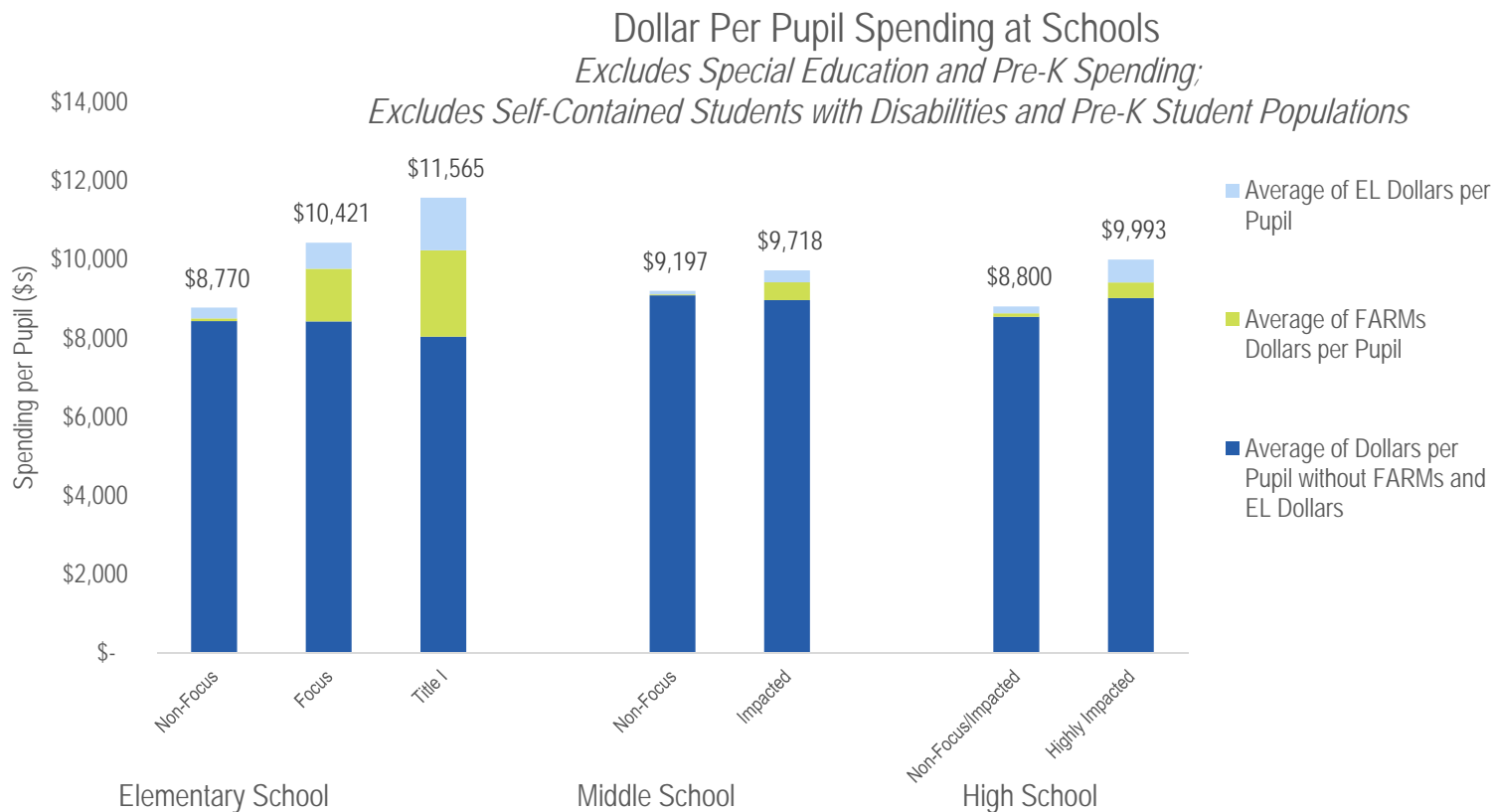
Explore

When we look at MCPS' FARMs investment by school level, we see that MCPS targets the majority of this investment to elementary schools instead of to middle or high schools.

Consider

The MCPS team confirmed that this is a deliberate strategy to target **additional funding to elementary schools**; however, it did raise questions for our team about investments that are made in higher-need middle and high schools as well. We explore this further in this report.

MCPS' investments in FARMs and EL students drives higher spending per pupil for high-need schools across all school levels



Context

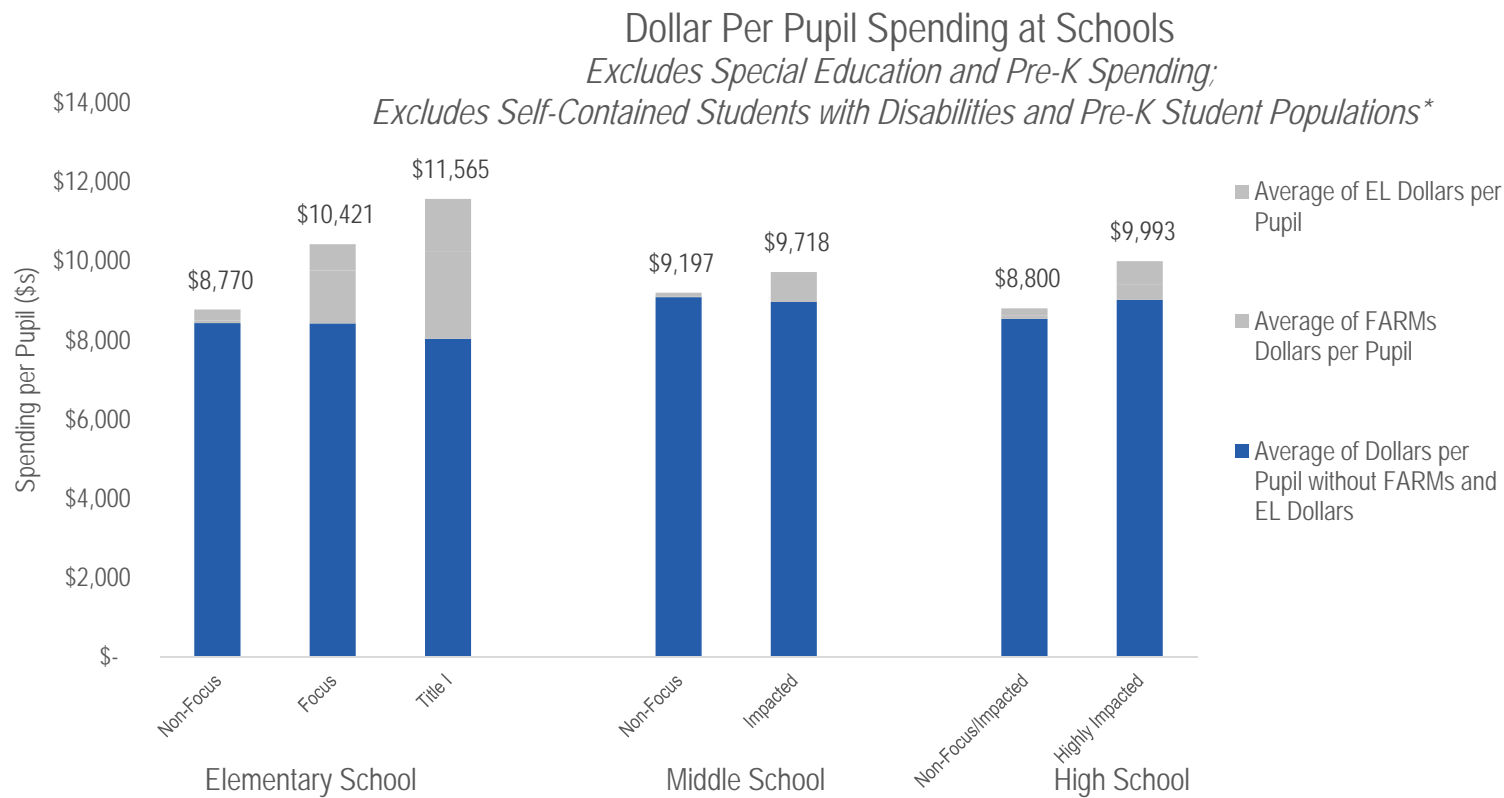
So far, we have looked at spending by student population at the district level. Now, we will see how that plays out across schools. *In order to make meaningful school comparisons, special education spending and self-contained students are not included in this analysis. These students are served primarily outside the general education environment, and their models of service (and the funding associated with them) can vary greatly across schools. Therefore, we exclude them in order to have an apples-to-apples comparison of general education funding levels across schools.*



Explore

This bar chart shows dollar per pupil spending at schools by school level and school need type. This data shows that higher-need schools across all school levels **spend more** than non-Focus schools, and that this higher spending is driven by the incremental FARMs and EL investment (represented in green and light blue respectively). The difference in spending is largest between higher-need and lower-need ES. This matches what we saw earlier: the majority of MCPS' incremental FARMs investment goes toward ES.

Without incremental EL and FARMs spending, higher-need elementary and middle schools spend slightly less than lower-need schools



Context

Now, we will look at the base allocation of dollars per pupil, without incremental EL or FARMs spending. As before, special education funding and self-contained students are excluded for purposes of making accurate comparisons across schools.



Explore

This data shows that just looking at total dollar per pupil misses an important nuance. Without the incremental EL and FARMs spending, higher-need elementary and middle schools actually spend **slightly less** than lower-need schools. This is represented by the dark blue bars.

**Note: To make meaningful school comparisons, special education spending and self-contained students are not included in this analysis. These students are served primarily outside the general education environment, and their models of service (and the funding associated with them) can vary greatly across schools. Therefore, we exclude them in order to have an apples-to-apples comparison of general education funding levels across schools.*

Source: MCPS SY17-18 Expenditures, ERS analysis. See glossary for definition of school-need designations

Higher-need schools have lower average teacher compensation and a higher percent novice teachers than lower-need schools

Average Teacher Compensation (Salary + Benefits) by School Level and School Need



% Novice Teachers (New to teaching)	Elementary School	Middle School	High School
	15% (Non-Focus), 17% (Focus), 23% (Title I)	10% (Non-Focus), 20% (Impacted)	10% (Non-Focus/Impacted), 14% (Highly Impacted)

Source: MCPS SY17-18 Expenditures, ERS analysis. See glossary for definition of school-need designations. Compensation is defined as salary plus benefits, but does not include pension contributions. Average Teacher Compensation excludes special education and Pre-K teachers



Context

To understand why the general education spending per pupil might be higher at lower-need schools, we explored differences in average teacher compensation as a potential driver. Like most districts, MCPS staffs schools by using staff to student ratios. This means that each school receives the same number of positions per student, regardless of where those positions are on the salary schedule. If certain schools have higher concentrations of more experienced teachers (and therefore, teachers that are higher on the salary schedule), this can create differences in per pupil spending.

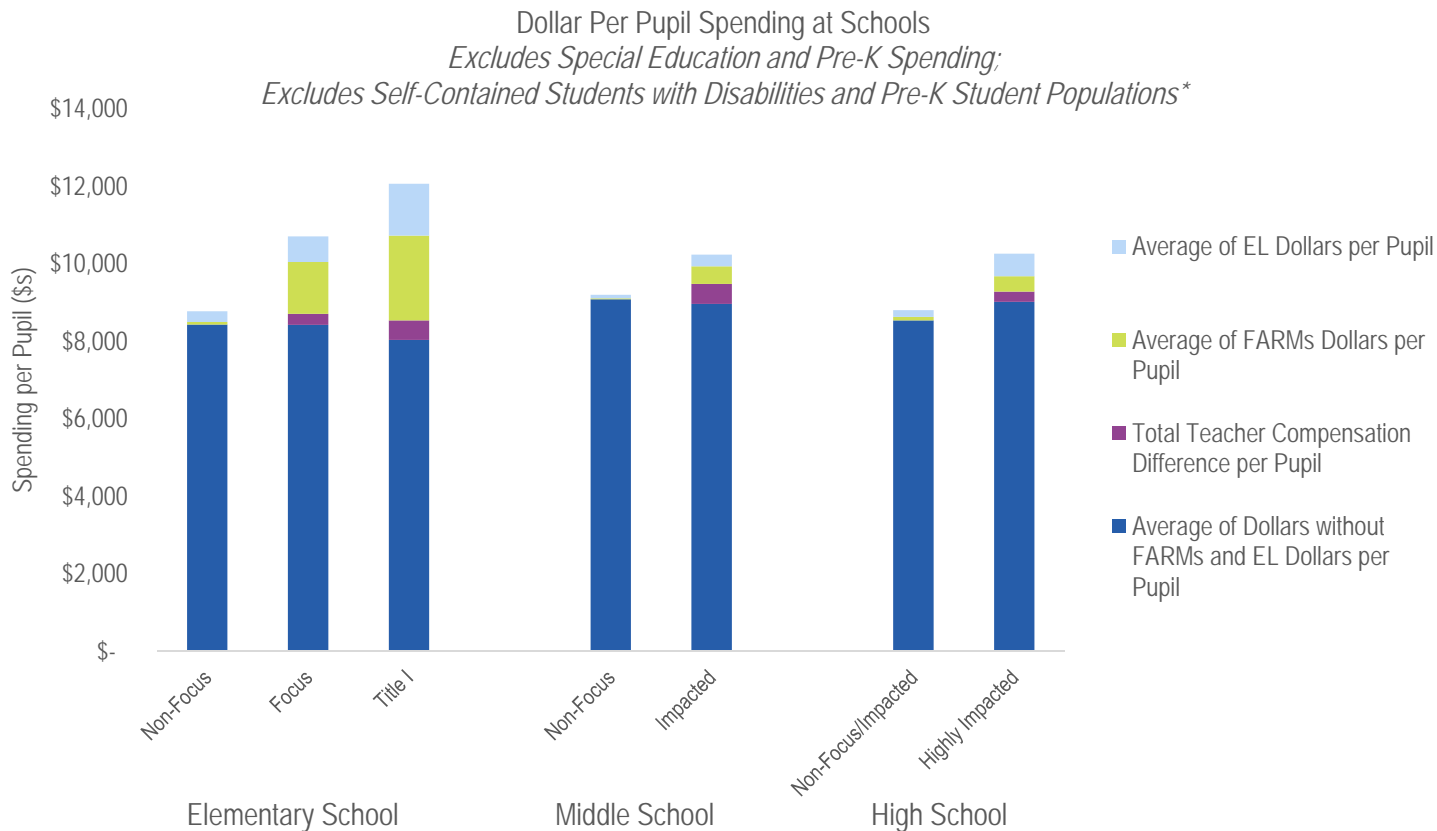


Explore

This bar chart shows that higher-need schools across all levels have **lower average teacher compensation** [salary + benefits] than lower-need schools. This is driven by the fact that higher-need schools have a higher concentration of novice teachers, who are on the lower end of the salary schedule. This difference is most pronounced at the middle school level, where impacted middle schools have 2x more novice teachers than non-Focus middle schools.

Data Note: Novice teachers are defined as teachers with less than three years of experience teaching. See Teaching Quality section for more details on this metric.

This difference in average teacher compensation between higher and lower need schools represents \$32M system-wide



Explore

This chart shows the magnitude of the difference in teacher compensation in purple – the purple bars represent how much more higher-need schools would spend if they had the same average teacher compensation as non-Focus schools. Two things about this data stand out:

(1) Looking at elementary schools, the purple bar almost perfectly evens out the dark blue bars – indicating that the difference in average teacher compensation would **level out the base allocation** in higher-need elementary schools.

(2) For middle and high schools, the size of the purple bar is almost the same size as the green bar (the incremental FARMs investment). This suggests that at the secondary level, the incremental poverty spending intended to cover the extra needs associated with poverty is **offset by the difference in access to teacher experience** as reflected in compensation levels.

Consider

This data raised two key questions:
 (1) Should we be differentiating funding more, particularly at secondary levels?
 (2) We differentiate spending more than other districts; but how are we using those additional investments to create the student experiences that make a difference?

**Note: To make meaningful school comparisons, special education spending and self-contained students are not included in this analysis. These students are served primarily outside the general education environment, and their models of service (and the funding associated with them) can vary greatly across schools. Therefore, we exclude them in order to have an apples-to-apples comparison of general education funding levels across schools.*

Source: MCPS SY17-18 Expenditures, ERS analysis. See glossary for definition of school-need designations

Unlike peer districts, almost all of MCPS' incremental FARMs spending goes toward instruction



Context

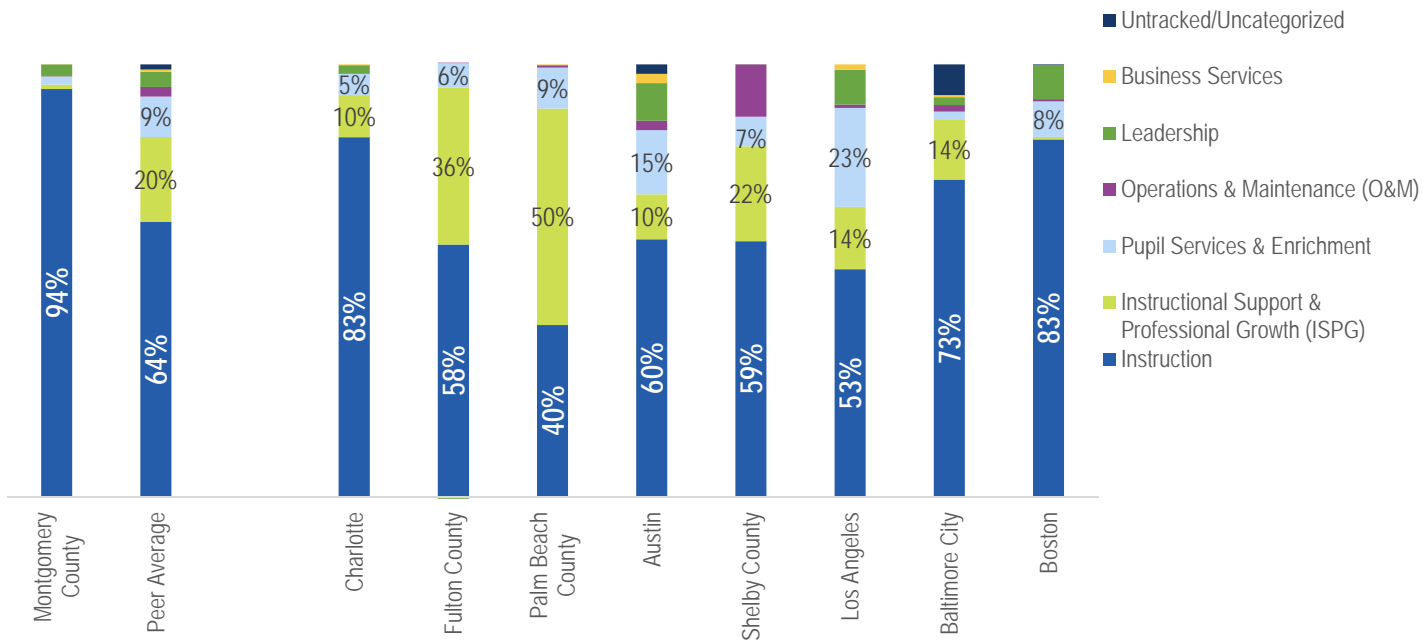
The previous slides focused on *how much* differentiation is associated with poverty in MCPS. Now, we will explore what that extra spending goes toward.



Explore

This bar chart looks at what different districts across the country choose to invest in with the dollars they target to FARMs students or high-poverty schools. Although there isn't necessarily a clear pattern across districts, one point stands out very clearly from this data: unlike peer districts, MCPS' extra poverty spending goes **almost entirely to instruction**. Instruction is made up of mostly teacher and paraeducator compensation. For a full list of terminology, see the appendix.

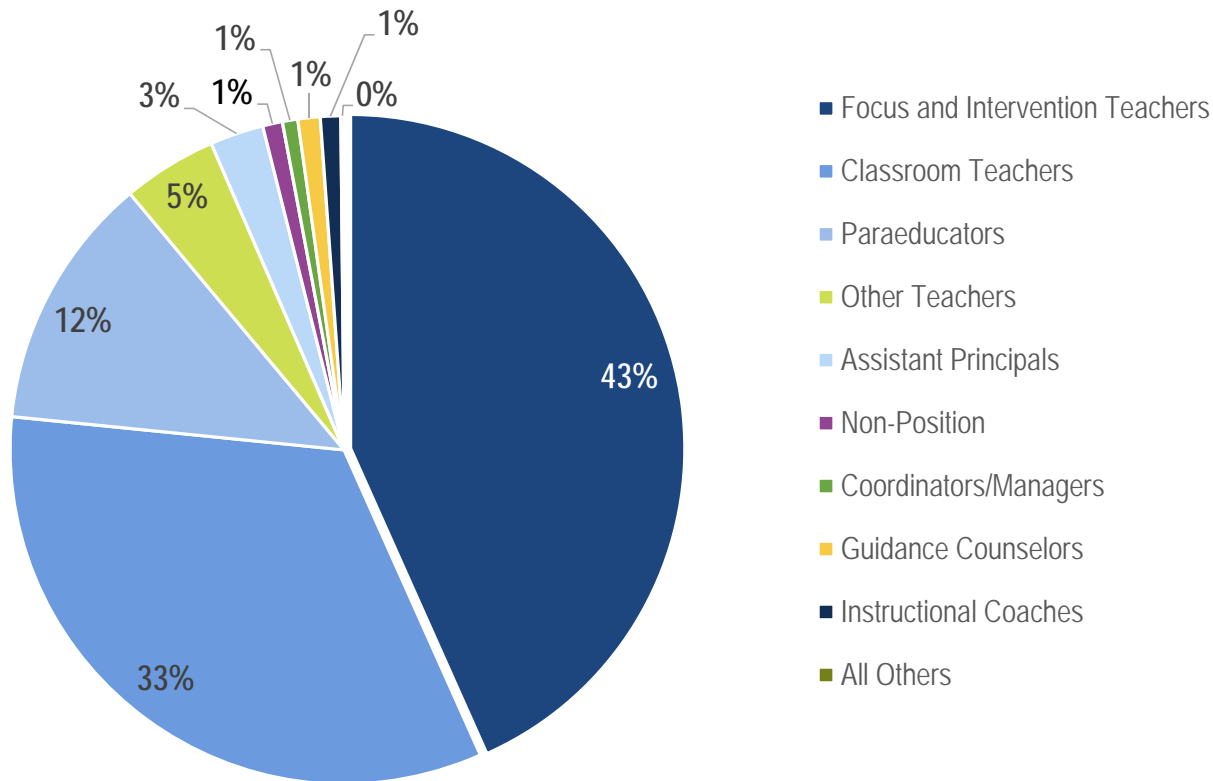
Percent of FARMs Investment in Schools, by Use



Source: MCPS SY17-18 Expenditures, ERS analysis; ERS benchmark database. Nurse and Nurse Aide dollars excluded from calculations. See appendix for definition of use categories.

Over 80% of MCPS' total incremental FARMs investment is in teacher positions

Percent of FARMs Investment in Schools, by Position

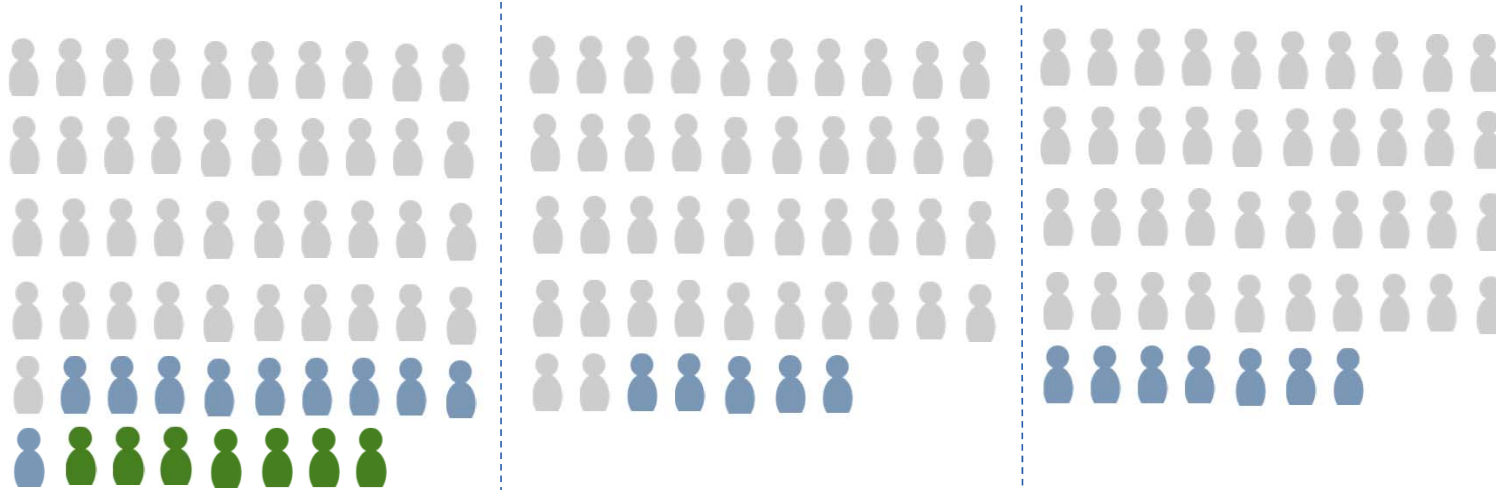


Explore

This data digs one level deeper and explores the specific position types that make up MCPS' FARMs investment. We see that close to 80% of MCPS' incremental FARMs investment is in classroom, *Focus*, and academic intervention teachers.

MCPS' additional poverty investments result in significantly more staff in higher-need schools across all levels

Full Time Equivalent (FTE) per 500 Students by School Level and School Need
*Excludes Special Education and Pre-K Spending;
 Excludes Self-Contained Students with Disabilities and Pre-K Student Populations*



Elementary School FTE/500 Students:

- Non-Focus: 41
- Focus: 51 (+10 or 24%)
- Title 1 : 58 (+17 or 41%)

Middle School FTE/500 Students:

- Non-Focus: 42
- Impacted: 47 (+5 or 12%)

High School FTE/500 Students:

- Non-Focus/Impacted: 40
- Highly-Impacted: 47 (+7 or 18%)

*Source: MCPS SY17-18 Expenditures, ERS analysis.
 See glossary for definition of school-need designations*

Explore

Ultimately, MCPS uses its staffing allocation formula and additional student need investments to put **more staff in higher-need schools**. This visual shows the total FTE per 500 students by school level and need. Across all school levels, higher-need schools have more FTE/500 students than lower-need schools. For example, on the very left, we see that non-Focus elementary schools have 41 FTE/500 students, compared to 58 FTE/500 students in Title 1 elementary schools (41% more staff). The differences in middle and high school are smaller, which is consistent with the smaller spending differences we saw earlier.

Consider

This set of data alone does not clearly validate or invalidate the use of MCPS' incremental FARMs spending. Instead, it raises a number of important questions specifically:

- What is the student experience we are trying to create and/or the needs we are trying to address?
- How do these investments align with and support that vision?

**Note: To make meaningful school comparisons, special education spending and self-contained students are not included in this analysis. These students are served primarily outside the general education environment, and their models of service (and the funding associated with them) can vary greatly across schools. Therefore, we exclude them in order to have an apples-to-apples comparison of general education funding levels across schools.*

MCPS' staffing formula intends to provide additional FTE to higher-need schools across position types

Incremental Position	Description of Intended Staffing for Higher-FARMs Schools	Intended Level of Differentiation in FTE Allocated for Higher Need Elementary Schools	Intended Level of Differentiation in FTE Allocated for Higher Need Middle and High Schools
Classroom Teachers	Provide additional classroom teachers to decrease average class size by 5 students in ES (exact class size reduction varies by grade) and by 1 student at MS/HS	↑ ↑ ↑	↑
Focus & Academic Intervention Teachers	Allocate additional FTE to highest-need schools	↑ ↑	↑ ↑
Paraeducators		↑ ↑	No intended differentiation
Asst. Principals & ASAs	Allocate additional FTE to highest-need and biggest schools	1	1 (For HS)
Counselors		1	No intended differentiation
Reading Initiative Teacher	Intended only for non-Focus schools	↓	Not a position at MS/HS



Context

How does *actual* staffing in schools compare to MCPS' intended **staffing allocation guidelines**? Differences in spending across schools can occur when schools get staffed differently than intended. This happens for various reasons, such as inaccurate enrollment projections and ad hoc requests.

The table to the left lists the positions that MCPS intends to staff differently for its lower- and higher- need schools. The arrows indicate the intended level of differentiation in FTE allocated for different positions as follows:

- 3 arrows = greater than 3 FTE
- 2 arrows = between 1 and 3 FTE
- 1 arrow or less = 1 or fewer FTE

The next few slides explore how actual staffing compares to this intent.

Elementary Schools: The majority of additional staff in higher-need schools are teacher positions

FTE per 500 Students by School Need at Elementary Schools

Excludes Special Education and Pre-K Spending; Excludes Self-Contained Students with Disabilities and Pre-K Student Populations

Position Type	Position	Non-Focus	Focus	Title I	Difference: Focus to Non-Focus	Difference: Title I to Non-Focus
Teacher	Classroom Teachers and Music, Art, P.E.	24.1	29.2	29.4	5.0	5.2
	Teacher, ESOL	1.1	2.8	5.8	1.7	4.7
	Focus and Academic Intervention Teachers	0.1	1.8	4.1	1.7	3.9
	Reading Teachers	1.0	1.0	1.2	0.0	0.1
	Other	0.1	0.3	0.4	0.2	0.3
	Teacher, Reading Initiative	0.6	0.0	0.0	(0.6)	(0.6)
Non-Teacher Positions	Paraeducator	1.3	2.8	3.4	1.5	2.1
	Asst. Principals & ASAs	0.6	1.0	1.0	0.4	0.4
	Counselors	1.1	1.1	1.1	0.0	0.1
	All Other*	10.9	11.0	11.2	0.1	0.3
Totals		41.1	50.9	57.5	9.9	16.4

Source: MCPS SY17-18 Expenditures, ERS analysis. See glossary for definition of school-need designations.

All Other Positions include custodians, administrative staff, coordinators/managers, librarians, principals, social workers, and other miscellaneous school-based staff; Classroom Teachers include Elementary and Kindergarten Teachers; Reading Teachers include Reading Specialist and Reading Support Teachers; Other Teachers include Special Programs Teachers and others

**Note: To make meaningful school comparisons, special education spending and self-contained students are not included in this analysis. These students are served primarily outside the general education environment, and their models of service (and the funding associated with them) can vary greatly across schools. Therefore, we exclude them in order to have an apples-to-apples comparison of general education funding levels across schools.*



Context

On the previous slide, we saw how much the staffing allocation model intends to differentiate the level of FTE for key positions in schools, depending on school need. Now, we will look at the actual staffing in schools to see how this compares, starting with elementary schools.



Explore

This table compares the FTE/500 students across position types for non-Focus, Focus, and Title I elementary schools. As we saw earlier, compared to non-Focus schools, Focus and Title I schools have more FTE/500 students – by 10 and 17 FTE/500 respectively. The majority of this extra staff comes from having **more teacher positions** per 500 students, across different teacher types (e.g. classroom, ESOL, Focus and academic intervention).

Elementary Schools: Actual staffing at high-need elementary schools matches intended staffing

Incremental Position	Description of Intended Staffing for Higher-FARMs Schools	Intended Level of Differentiation in FTE Allocated for Higher Need Elementary Schools	Actual Matches Intent?
Classroom Teachers	Provide additional classroom teachers to decrease average class size by 5 students at ES (exact class size reduction varies by grade) and by 1 student at MS/HS	↑ ↑ ↑	✓
Focus & Academic Intervention Teachers	Allocate additional FTE to highest-need schools	↑ ↑	✓
Paraeducators		↑ ↑	✓
Asst. Principals & ASAs	Allocate additional FTE to highest-need and biggest schools	1	✓
Counselors		1	✓
Reading Initiative Teacher	Intended only for non-Focus schools	↓	✓



Given the differences in actual staffing among non-Focus, Focus, and Title I elementary schools, we saw that actual **staffing differences match** MCPS intended staffing (as defined by MCPS' staffing formula) across all position types. This suggests that the staffing formula for elementary schools is **working as intended**.

Note: The arrows indicate the intended level of differentiation in FTE allocated for different positions as follows:

- 3 arrows = greater than 3 FTE
- 2 arrows = between 1 and 3 FTE
- 1 arrow or less = 1 or fewer FTE

Secondary Schools: Higher-need middle and high schools have more staff overall, but there is little difference in total classroom teachers

FTE per 500 Students by School Need at Secondary Schools
Excludes Special Education and Pre-K Spending; Excludes Self-Contained Students with Disabilities and Pre-K Student Populations

Position Type	Position	Middle School			High School		
		Non-Focus	Impacted	Difference: Focus to Non-Focus	Non-Focus/Impacted	Highly-Impacted	Difference
Teacher & Instructional Coach Positions	Classroom Teachers	21.3	21.2	(0.2)	22.2	22.4	0.3
	ESOL Teachers	0.4	1.3	0.9	0.6	2.3	1.6
	Focus & Academic Intervention Teachers	0.0	1.4	1.4	0.2	1.3	1.1
	Other Teachers	0.5	1.0	0.5	0.9	1.8	0.8
	Resource Teachers, Content Specialists, Team Leaders	4.9	6.5	1.6	1.9	2.6	0.7
	Staff Development Teachers	0.5	0.5	0.0	0.2	0.2	0.0
	Other Instructional Coaches	0.3	0.4	0.0	0.3	0.4	0.1
Non-Teacher, Non-Instructional Coach Positions	Paraeducator	0.4	1.1	0.7	1.2	1.7	0.5
	Asst Principals	1.3	1.3	0.0	0.9	1.1	0.1
	All other	12.1	12.4	0.3	11.8	13.3	1.6
Totals		41.7	47.0	5.4	40.0	46.9	6.9

Source: MCPS SY17-18 Expenditures, ERS analysis. See glossary for definition of school-need designations. Instructional coach positions are staff with a primary role of directly supporting teachers in instructional practice. Other Teachers include Central Office Teachers, ESOL Teachers, Alternative Programs Teachers, Special Programs Teachers, Physical Education Teachers; ROTC Instructors, Career Support and Career Preparation Teachers; Other Instructional Coaches includes Consulting Teachers, Instructional Specialists, and PreK-12 Content Specialists.

Note: In HS, difference in "all other" positions is driven mainly by additional school safety and custodial staff

*Note: To make meaningful school comparisons, special education spending and self-contained students are not included in this analysis. These students are served primarily outside the general education environment, and their models of service (and the funding associated with them) can vary greatly across schools. Therefore, we exclude them in order to have an apples-to-apples comparison of general education funding levels across schools.



Context

The previous slides walked through a comparison of actual and intended staffing in elementary schools. Now, we will look at the actual staffing in middle and high schools to see how this compares to the intended staffing allocation model.



Explore

Higher-need middle and high schools have more FTE/500 students than lower need schools by 5.4 and 6.9 FTE/500 respectively. In secondary schools, a good portion of this additional staff comes from additional teacher and instructional coach positions.

However, although higher-need middle and high schools have more staff overall, there is **little difference in total classroom teachers** – specifically, impacted middle schools actually had 0.2 classroom teacher FTE/500 students *less than* non-Focus middle schools. Highly-impacted high schools had 0.3 classroom teacher FTE/500 students *more than* non-Focus HS. The positions that higher-need secondary schools did have more of include: ESOL teachers, Focus and academic intervention teachers, resource teachers, content specialists, and team leaders.

Secondary Schools: Actual staffing at higher-need schools matches intended for Focus and academic intervention teachers, but not for classroom teachers

Incremental Position	Description of Intended Staffing for Higher-FARMs Schools	Intended Level of Differentiation in FTE Allocated for Higher Need Middle and High Schools	Actual Matches Intent?
Classroom Teachers	Provide additional classroom teachers to decrease average class size by 5 students at ES (exact class size reduction varies by grade) and by 1 student at MS/HS	↑	X
Focus & Academic Intervention Teachers	Allocate additional FTE to highest-need schools	↑ ↑	✓
Paraeducators		No intended differentiation	N/A
Asst. Principals & ASAs	Allocate additional FTE to highest-need and biggest schools	↓ (For HS)	✓
Counselors		No intended differentiation	N/A
Reading Initiative Teacher	Intended only for non-Focus schools	Not a position at MS/HS	N/A



Explore

Given the differences in actual staffing between lower- and higher- need secondary schools, we found that actual staffing matches intended staffing for other teachers and administrators, but **not for classroom teachers**. Specifically, MCPS' staffing formula *intends* to provide more classroom teachers to higher-need secondary schools, but this does not show up in what schools actually receive. This could be a result of a number of factors, including rounding that happens when calculating staffing ratios, and ad hoc exceptions.



Consider

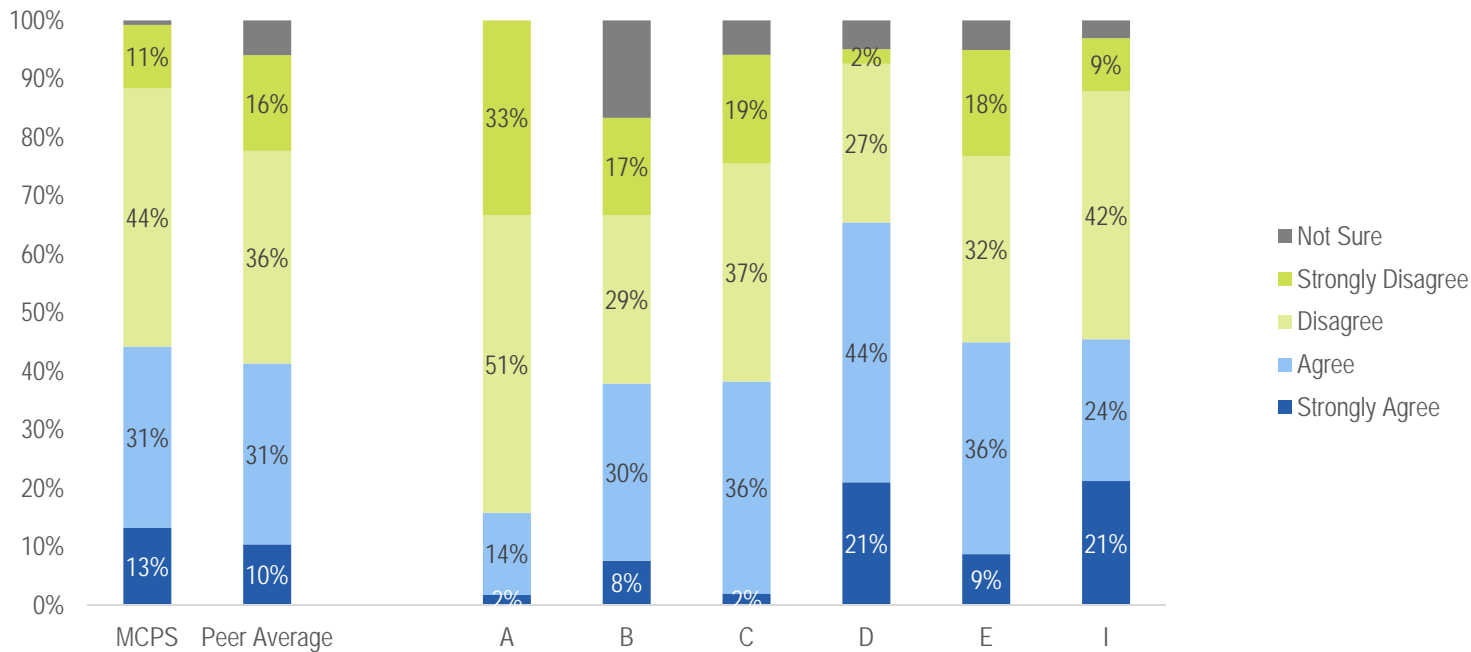
This data raises the questions: does the additional investment in secondary school positions match our vision for higher-need schools? How are positions used across schools?

Note: The arrows indicate the intended level of differentiation in FTE allocated for different positions as follows:

- 3 arrows = greater than 3 FTE
- 2 arrows = between 1 and 3 FTE
- 1 arrow or less = 1 or fewer FTE

Like other districts, the majority of MCPS principals do not think resources are allocated equitably

Principal response to the statement "Positions and dollars are allocated equitably based on my school's needs"



Context

The last thing we looked at related to school funding in MCPS is principals' perspectives.



Explore

The data to the left shows responses to the principal survey statement: "Positions and dollars are allocated equitably based on my school's needs." In MCPS, 55% of principals responded with *disagree* or *strongly disagree*. This result is similar to other districts studied.

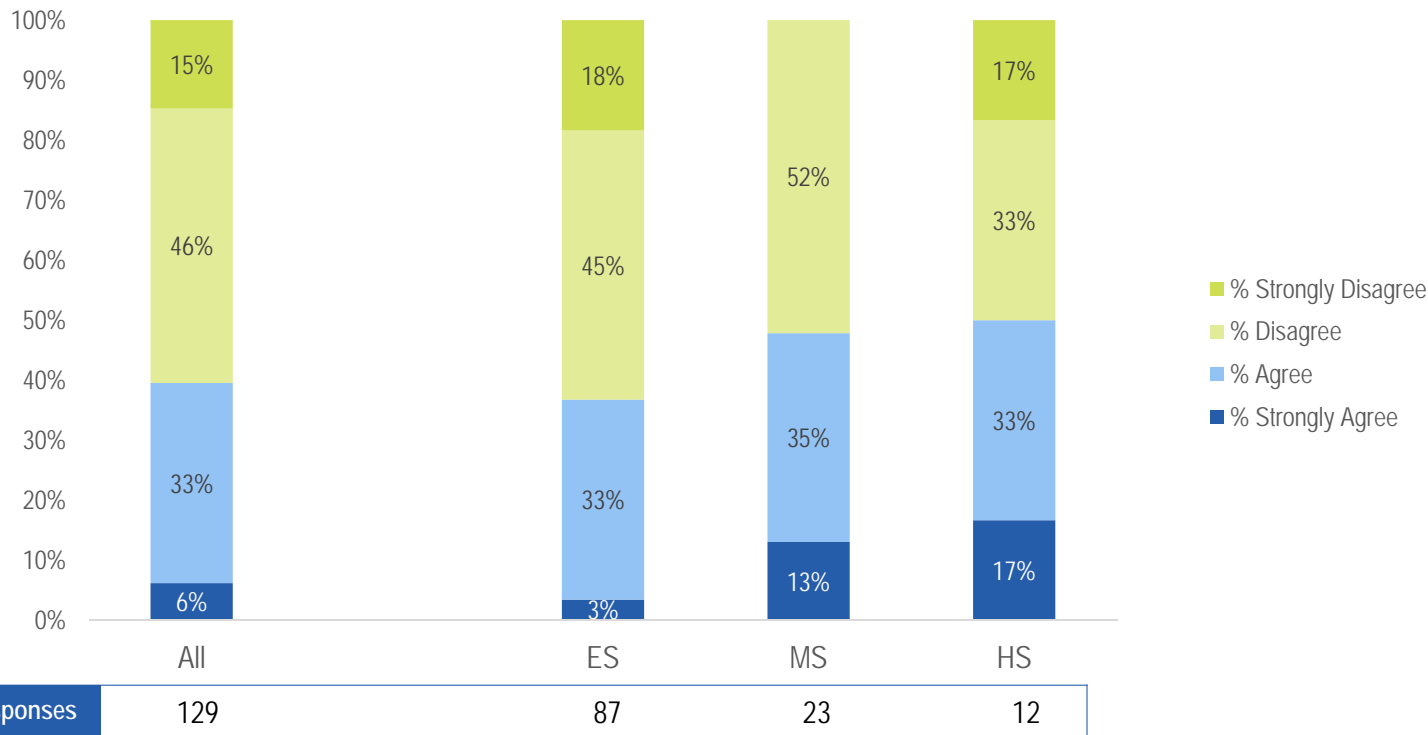


Consider

Looking ahead, a potential next step was identified to further understand principal opinion on this topic to help inform potential actions.

60% of principals do not think they have the right mix of positions at their schools, with higher levels of disagreement from elementary school principals

Principal response to the statement "My school has the right mix of positions and resources to meet the needs of my school and students"



Explore

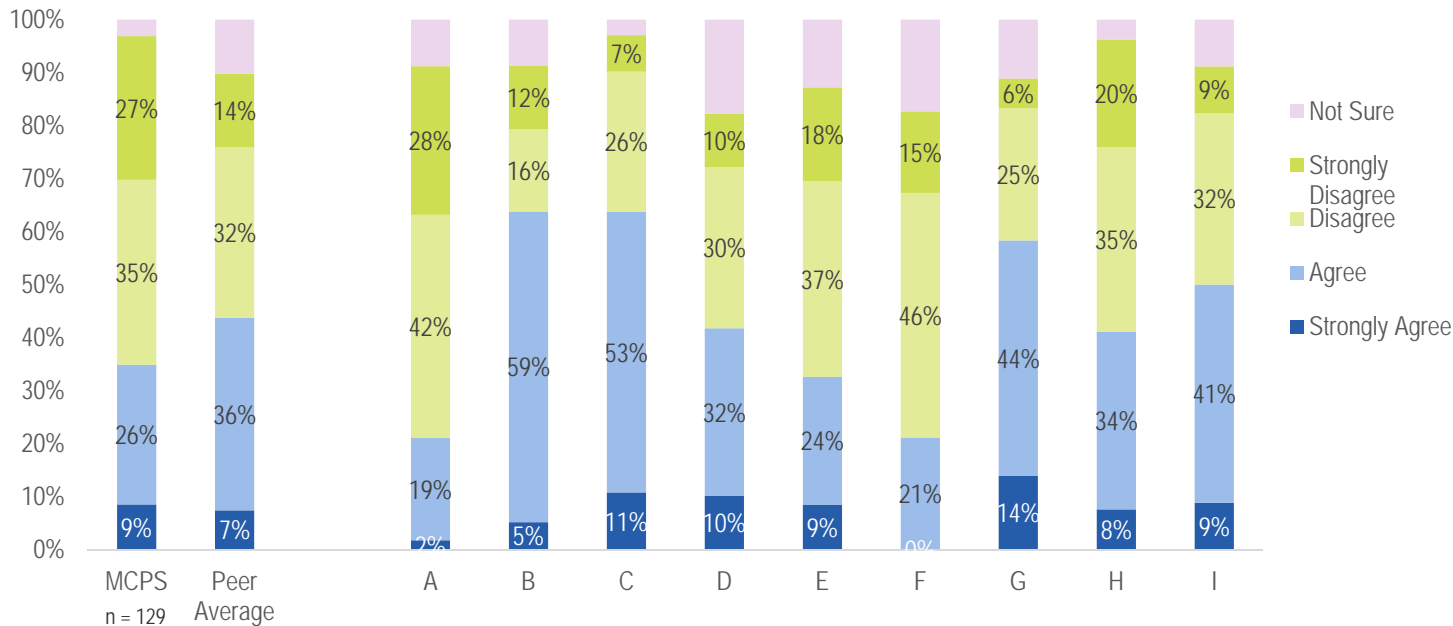
This data shows the principal survey responses to the statement: "My school has the right mix of positions and resources to meet the needs of my school and students." The majority of principals responded with **disagree or strongly disagree**, with higher levels of disagreement in elementary schools.

Consider

Looking ahead, a potential next step was identified to further understand principal opinion on this topic to help inform potential actions.

Relative to other districts, a greater percent of MCPS principals do not think they have the flexibility to make changes to their budget or staff

Principals responses to the statement "I have flexibility over how I spend my budget, including swapping staff positions or exchanging staff positions for dollars"



Explore

This data shows the principal survey responses to the statement: "I have flexibility over how I spend my budget, including swapping staff positions or exchanging staff positions for dollars." 62% of MCPS principals responded with *disagree* or *strongly disagree*, compared to 46% in peer districts.

Consider

- This data raises two questions:
- (1) Are there opportunities to increase transparency and understanding of the **current flexibilities** that principals have?
 - (2) Should MCPS consider **changing or increasing** the level of flexibilities that principals have over budgets so they can better match resources to their own school need?



School Funding: Key Questions

Given that MCPS differentiates spending for higher-need schools, how well does that additional investment match our vision for the student experience? Specifically:

- Is the level of differentiation in funding to the highest-need schools sufficient across all levels?
- Are we providing the right mix of positions to schools?
- Are we providing the right level of flexibility to principals? Are those flexibilities widely known and understood?
- How well are resources being used? How does funding relate to our other equity dimensions?

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

- In MCPS, higher-need schools/students get **more**
- In MCPS, higher-need schools/students get a **similar level**
- In MCPS, higher-need schools/students get **less**

You are here



Performance
School Funding
Teaching Quality
Instructional Time and Attention
Rigorous, Empowering Curriculum
Diverse and Inclusive Schools and Classrooms
Whole Child Approach
School Leadership Quality

Dimensions of resource equity



Dimensions of Resource Equity

Teaching Quality



Teaching Quality: At a Glance

Vision: All students experience a high-quality teaching workforce that reflects student diversity

Why it Matters	<p>Consistent access to great teaching has a dramatic effect on student achievement and long-term outcomes, such as college graduation rates and post-school salaries.</p>
How it's Assessed <i>*Indicates topics addressed in our study</i>	<ul style="list-style-type: none"> • Teaching quality measures* (<i>see next slide for more details on exact measures</i>) • Teacher assignment to schools and students* • Practices for teacher collaboration and support* (e.g. teacher load) • Teacher diversity
Study Insights	<p>Teacher assignment to schools and students:</p> <ul style="list-style-type: none"> • In MCPS, Focus group students are more likely than Monitoring group students to spend time with novice teachers and less likely to spend time with teacher leaders, National Board Certified teachers, and teachers with advanced degrees. • In elementary and middle school, differences in student experience is driven mostly by differences in teachers across schools. In high school, the difference is driven mostly by within school assignment of teachers to certain classes or students. <p>Practices for teacher collaboration and support:</p> <ul style="list-style-type: none"> • Overall, novice teachers in middle and high schools do not have lower class loads or fewer preps than non-novice teachers. • Principals report mixed results on practices related to teacher support and teacher collaboration.

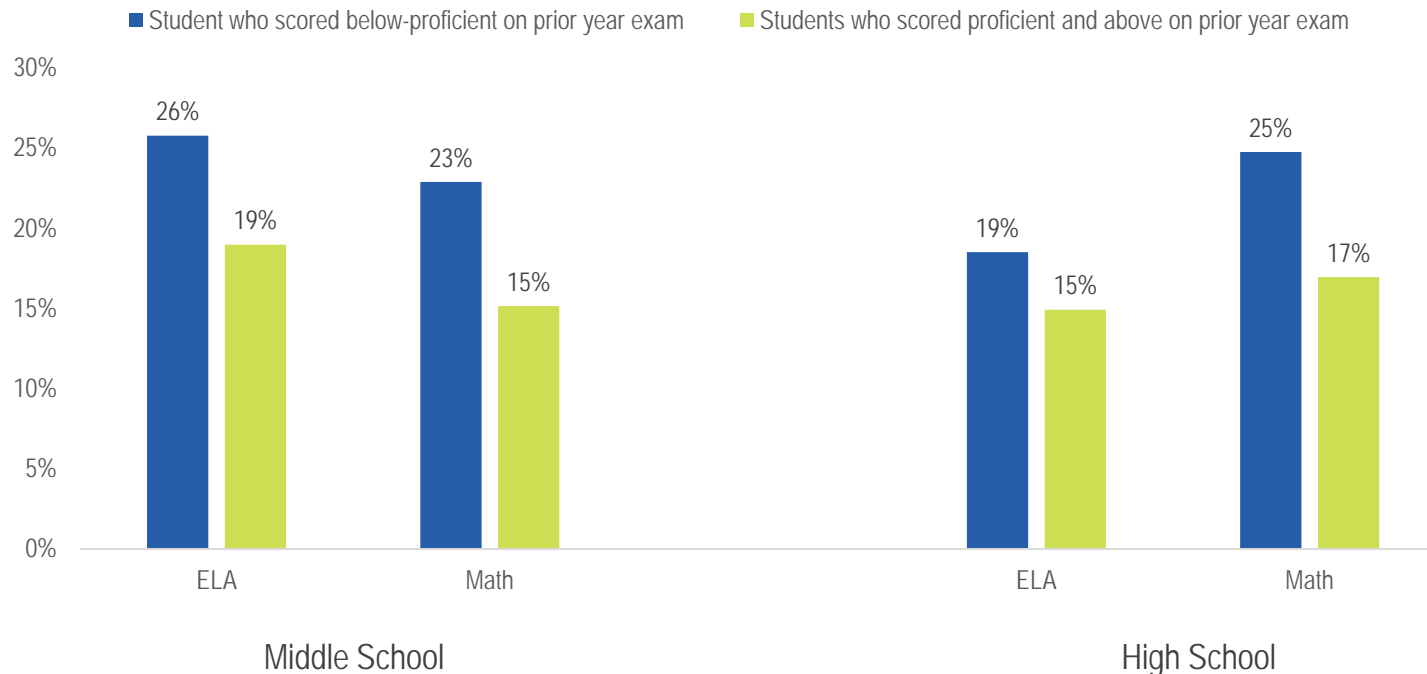
A note on teaching quality measures

Across the education field, there is no singular, agreed-upon way to objectively measure teaching quality. For this study, we considered the measures listed below. We recognize that teacher experience, leadership, and certification measures are not direct measures of teaching quality. To identify high-level trends, our analysis looks across multiple measures from the data that was available.

Measure	Used in study?	Rationale
Teacher evaluation data	No	Data was not available for this study.
Novice teachers – <ul style="list-style-type: none"> New to MCPS New to teaching 	Yes	<p>Research shows that teachers make the greatest gains in effectiveness during their first three years of teaching, and that generally, teachers with less than three years of experience are less effective than those with more experience. Additionally, having a high percentage of novice teachers suggests less continuity and stability of the school staff over time, which may impact student experience. For this analysis, we looked at two different metrics for novice teachers.</p> <ul style="list-style-type: none"> New to MCPS – teachers with fewer than three years of experience in MCPS New to teaching – teachers with fewer than three years of teaching overall <p><i>Research does not indicate or suggest novice teachers are not effective; instead, it indicates that for most teachers, effectiveness increases with experience, particularly early in an individual's career.</i></p>
Teacher leaders	Yes	In MCPS, schools select some high-performing teachers to take on teacher leadership roles. For this reason, we use teacher leaders as a general proxy for high-quality teachers. <i>Positions included as teacher leaders: content specialists, resource teachers, team leaders (MS), and staff development teachers.</i>
National Board Certified (NBC) teachers	Yes	MCPS provides stipends to NBC teachers as part of a strategy to attract and retain high-quality teachers.
Education level (Masters+60 or higher advanced degree)	Yes	Through the salary schedule, MCPS invests more in teachers with higher levels of education as part of a strategy to attract and retain high-quality teachers.
Student survey data	No	Data was not available for this study.

Students who enter the school year below proficient in ELA and math are more likely to have novice teachers in those subjects

Percent of Novice Teachers (New To MCPS) by Subject and Student Incoming Performance
(Novice defined as teachers with less than 3 years of experience in MCPS)



Context

All students should have access to great teachers, particularly those students who are furthest behind and need additional support to catch up.

The first way we assess teaching quality is by looking at access to novice teachers. We start by comparing access to novice teachers (defined as new to MCPS) across students with different incoming performance levels.



Explore

In middle and high school, students who were below proficient during the prior school year are **more likely** to have a novice teacher in the current school year than students who were proficient. In other words, students who are behind and likely need additional support to catch up are in classes with teachers with the least experience. In this case, teacher experience is **differentiated against** student need.

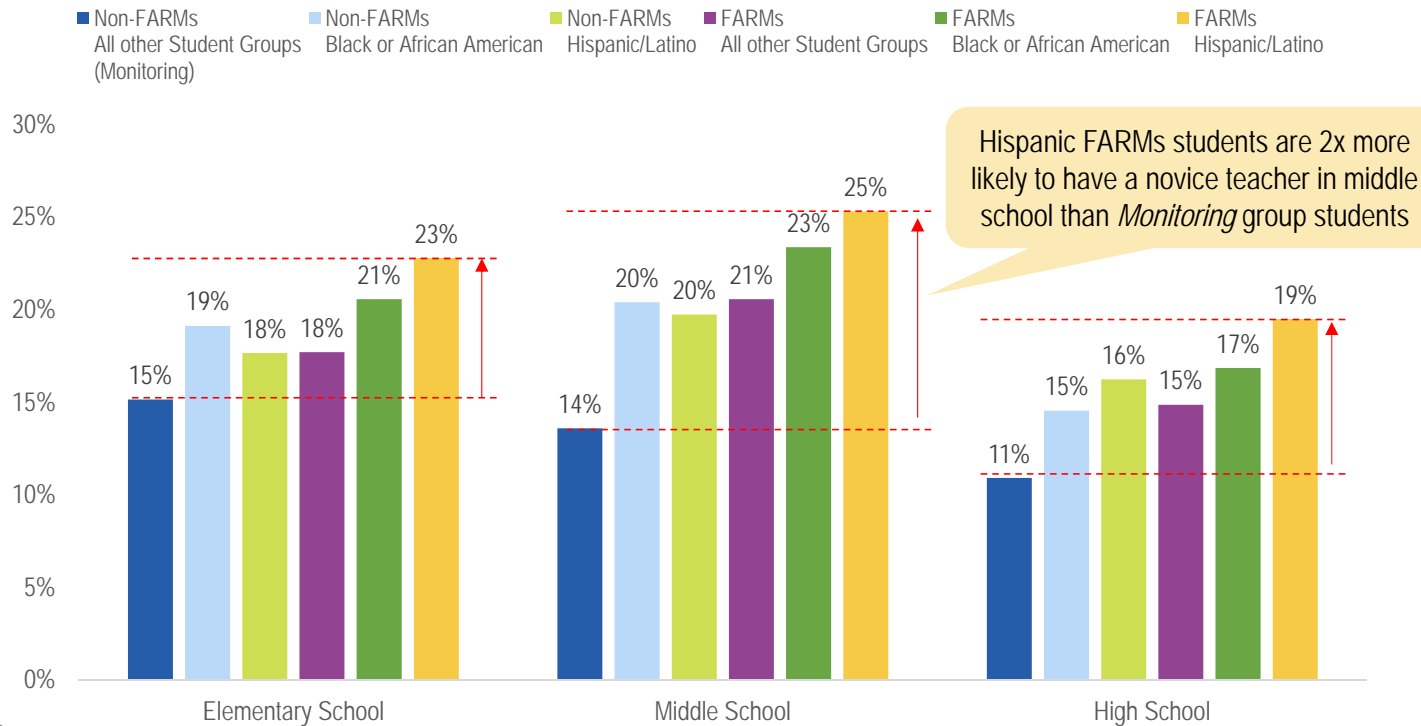


Consider

The MCPS project team recognized this as an important equity challenge for the district to address.

Across school levels, *Focus* group students spend more time with novice teachers than *Monitoring* group students

Student Assignment to Novice Teachers (New to MCPS)
 ES: Percent of Students with Novice Homeroom Teacher
 MS/HS: Percent of Classes With Novice Teachers



Source: MCPS 17-18 Course Schedule, ERS analysis

Context

Next, we look at the likelihood of having novice teachers by student group (as defined in the MCPS Equity Accountability Model).

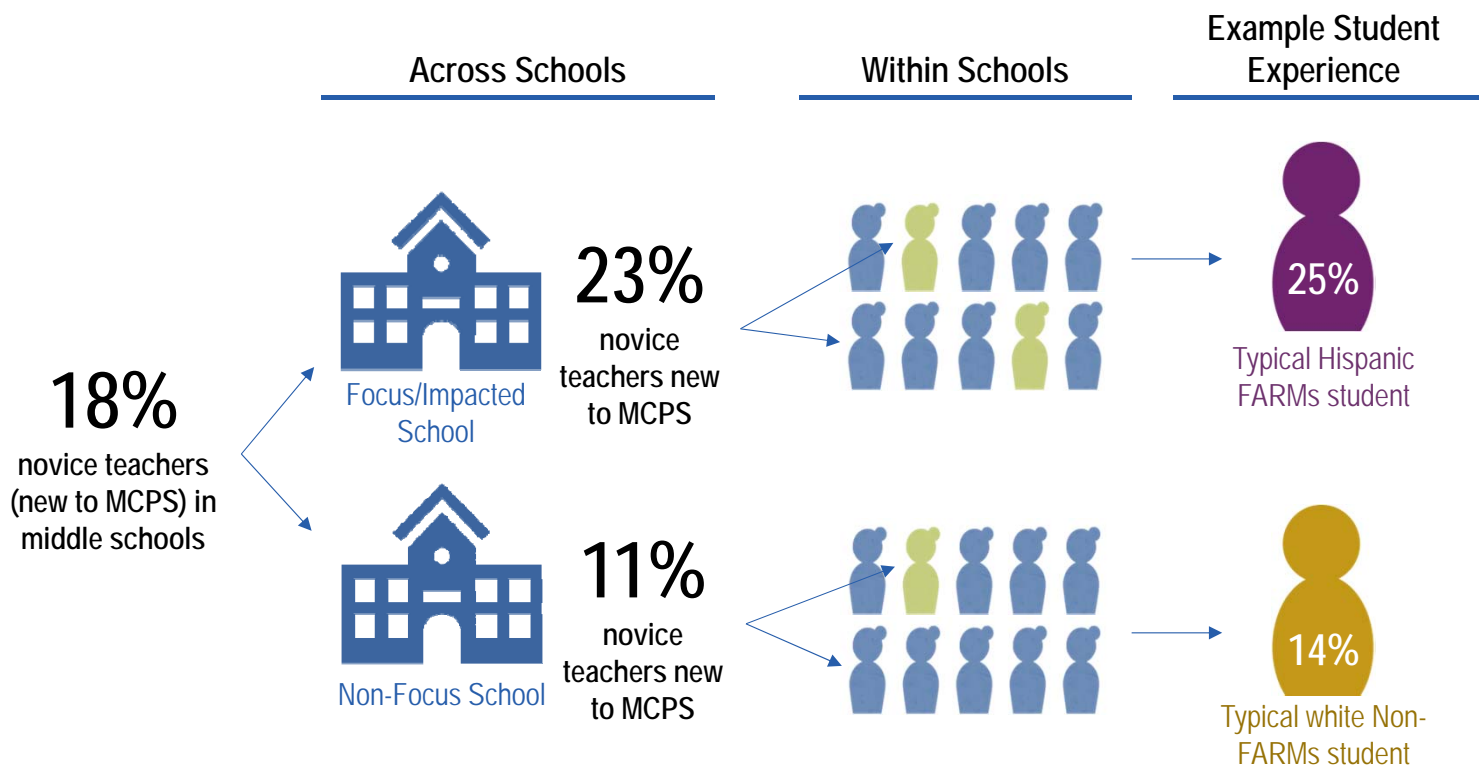
Explore

Across elementary, middle and high school, *Focus* group students are **more likely** than *Monitoring* group students to have novice teachers. For example, Hispanic /Latino FARMs students in middle school are **almost two times more likely** to have a novice teacher than their *Monitoring* group peers.

Consider

The MCPS project team identified this as a potential area to improve equity in the district so that certain student groups are not disproportionately spending time with novice teachers.

What factors drive differences in the student experience?



Context

There are two reasons why students might be more likely to be served by a novice teacher—one is about differences in the population of novice teachers *across* schools, and the other is about differences in *within* school classroom assignments. We will use the example of a typical Hispanic FARMs student in middle school to illustrate these factors.

Overall, 18% of middle school teachers in MCPS are novice. However, impacted schools have a higher concentration of novice teachers (23% of teachers in focus/impacted middle schools are novice, compared to 11% of teachers in non-Focus middle schools). Therefore, students in an impacted school will be more likely to have a novice teacher, simply because of **the school they attend**.

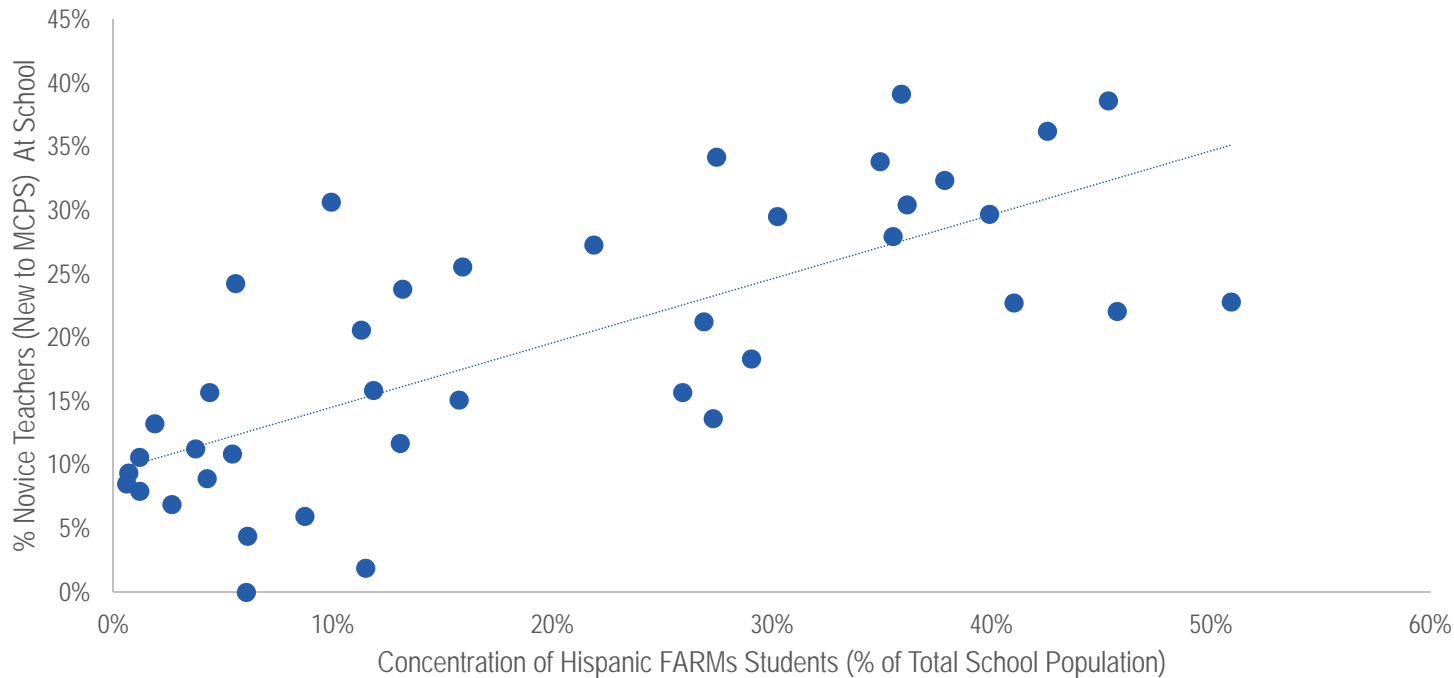
Within both impacted *and* non-Focus schools, students may also have different experiences with novice teachers based on their **specific class assignment**.

It is important to understand the impact of each of these factors separately as a way to inform potential actions – addressing differential access to novice teachers due to across-school differences will necessitate different actions than addressing within-school assignment differences.

Source: MCPS 17-18 Course Schedule, ERS analysis. In MS, non-focus schools have <20% FARMs students. Impacted schools have >20% FARMs.

Across Schools (MS): Schools with higher concentrations of Hispanic FARMs students have a higher percentage of novice teachers

Middle Schools: Percent of Novice Teachers (New to MCPS)
vs. Percent of Hispanic FARMs Students



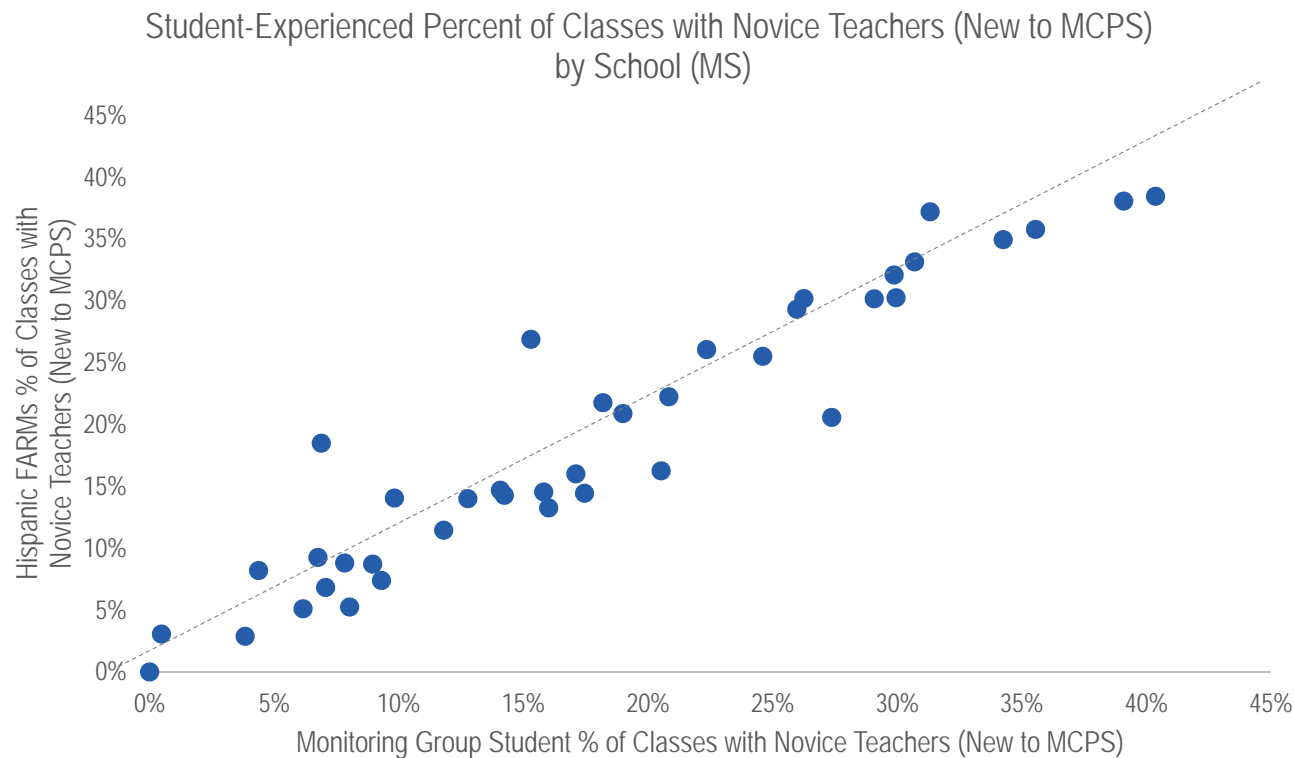
Explore

This chart shows how differences in the percent of novice teachers **across schools** disproportionately impacts *Focus* group students, using the Hispanic FARMs *Focus* group as an example.

Each dot on the chart represents a middle school. Schools on the right have more Hispanic FARMs students, and schools in the top half have more novice teachers. The dotted trendline shows that there is a positive correlation between concentration of Hispanic FARMs students and concentration of novice teachers in middle schools.

Note that while the overall correlation is positive, we also see significant variation among schools with similar concentrations of Hispanic FARMs students. For example, comparing schools with ~10% Hispanic FARMs students, some have <5% novice teachers, while others have ~30%. This shows us that differences in the percent of novice teachers is important across *all* schools, not just higher-need schools.

Within Schools (MS): In most middle schools, Hispanic FARMs students have a similar percent of classes with novice teachers as their *Monitoring* group peers



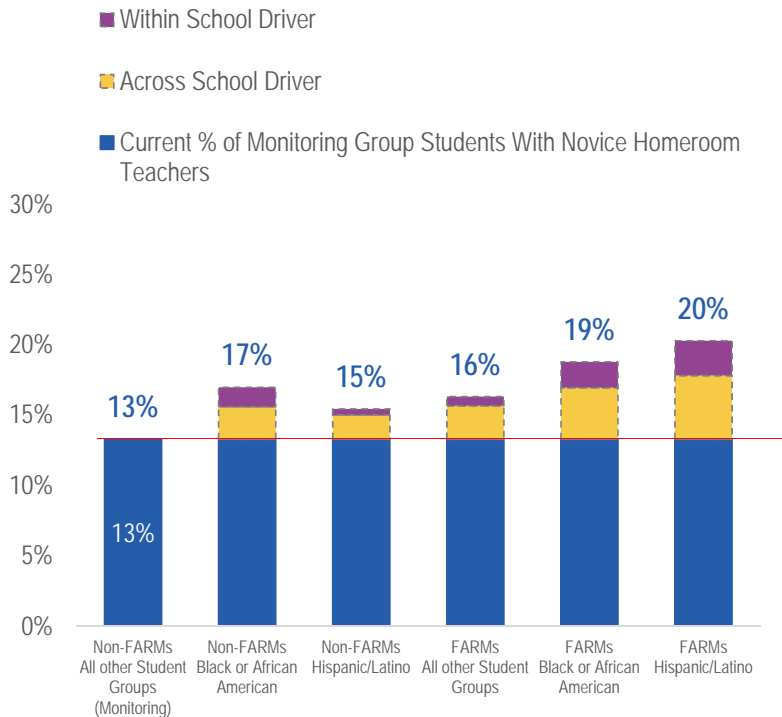
This chart shows how student experiences differ **within** schools. The horizontal axis is the percent of classes that *Monitoring* group students have with a novice teacher in a given middle school. The vertical axis is the percent of classes that **Hispanic FARMs** students have with a novice teacher in that same school.

If *Monitoring* group and Hispanic FARMs students in a school are equally likely to have novice teachers, that school would appear on the dotted gray line. In schools above the line, Hispanic FARMs students are more likely to have novice teachers. In schools below the line, *Monitoring* group students are more likely to have novice teachers.

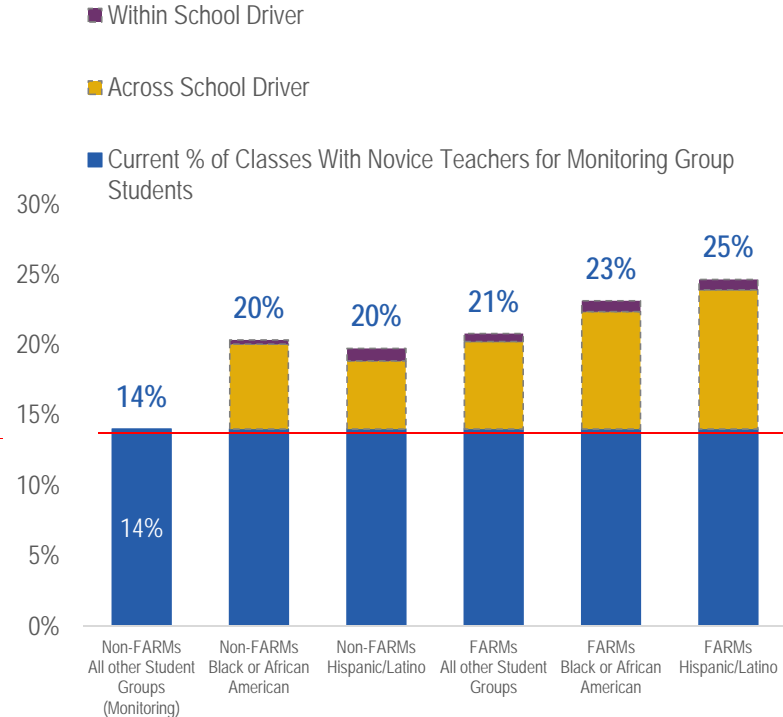
In this chart, most dots are close to the dotted line, suggesting that Hispanic FARMs students and *Monitoring* group students in a given school have a similar percent of classes with novice teachers.

In elementary and middle school, the difference in the concentration of novice teachers *across schools* accounts for most of the difference in student experience

Student-Experienced Homeroom Classes with Novice Teachers (New to MCPS) – Elementary School Drivers



Student-Experienced Percent of Classes with Novice Teachers (New To MCPS) – Middle School Drivers



Explore

We can size the relative impact of across- and within-school factors on overall differences in student experience to assess root causes and inform priorities for action. (See appendix for details on methodology.)

We see that in elementary and middle school, the difference in the concentration of novice teachers **across schools** accounts for almost the entire difference in student experience at the district level, and that differences in within school assignment are a smaller factor. Specifically, the orange bar segment shows how much of the student experience difference is explained by across school differences.



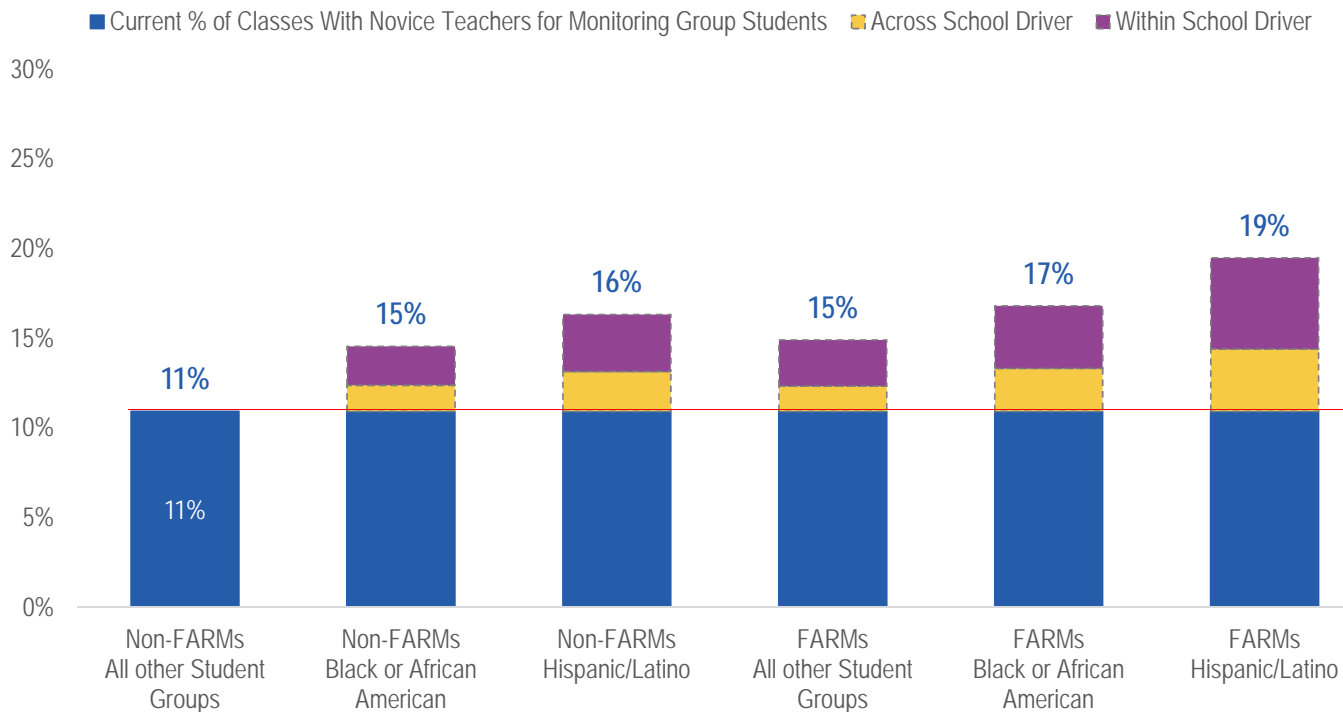
Consider

This data raised a question about how to improve the value proposition for teaching in our highest-need schools so that great teachers *want* to work at those schools.

Source: MCPS 17-18 Course Schedule, ERS analysis.

In contrast, in high schools, *within-school* assignment decisions are a bigger driver of difference in student experience

Student-Experienced Percent of Classes with Novice Teachers (New to MCPS)
High School Drivers



Explore

In high school, differences in *within-school* assignment are a bigger driver of the overall difference in a student's percent of classes with novice teachers, shown by the purple bar. This trend holds true for students in every *Focus* group.

At the same time, across-school differences in the concentration of novice teachers persist and contribute to the overall difference in student experience, shown by the orange bar.



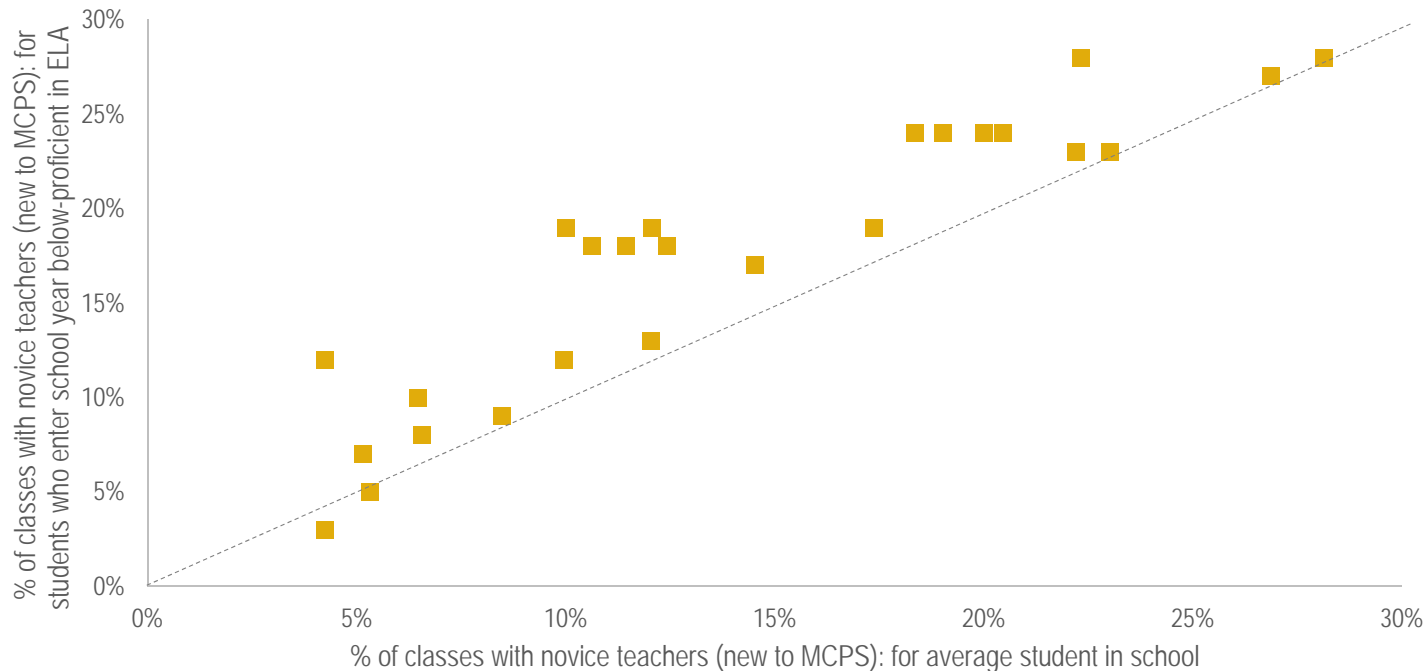
Consider

This data raised questions about *how* and *why* student assignment practices result in these patterns.

Within Schools (HS):

In almost every high school, students who enter the school year below-proficient spend more time with novice teachers than a typical student in their school

Student-Experienced Percent of Classes with Novice Teachers (New to MCPS) by School (HS)
Students who enter school year below-proficient in ELA compared to average student in school



Explore

This chart illustrates the within-school assignment differences in high schools. For this chart, we looked at students who enter the school year below-proficient compared to peers, instead of by student groups defined in MCPS' Equity Accountability Model.

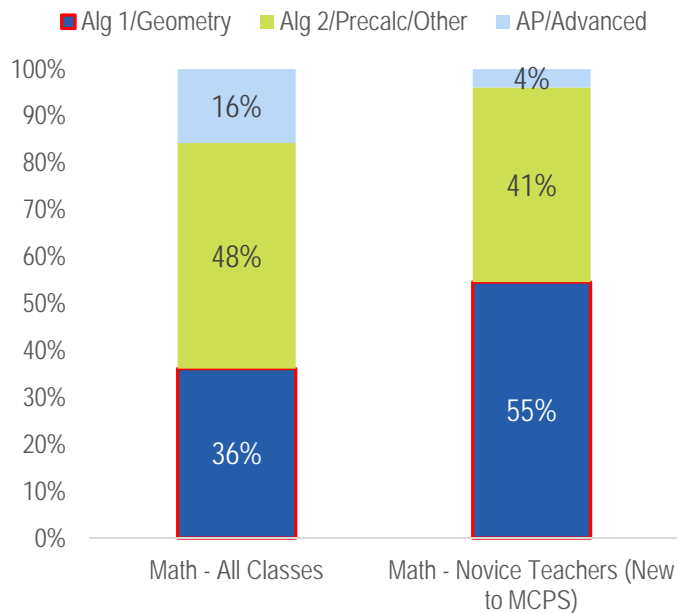
The horizontal axis is the percent of classes that a typical student has with a novice teacher in a given school. This reflects the average percent of classes with novice teachers across **all students** in the school.

The vertical axis is the percent of classes that students who enter the year **below-proficient** have with a novice teacher in that same school. Most schools are above the dotted gray line. This means that in most high schools, below-proficient students are more likely to have classes with a novice teacher than the average student.

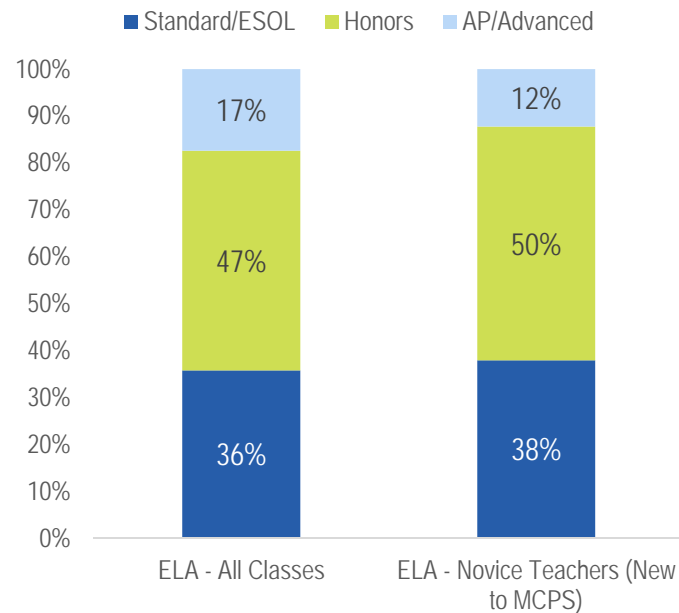
Within Schools (HS):

Assignment of novice teachers to less advanced math classes contributes to within-school assignment differences for *Focus* group students and students entering the year below-proficient

HS Math: Percent of Classes Overall vs. Classes Taught by Novice Teachers (new to MCPS)



HS ELA: Percent of Classes Overall vs. Classes Taught by Novice Teachers (new to MCPS)



Context

To help understand why within-school assignment differences might exist, we looked at whether novice teachers in high school are more likely to teach lower-level classes.



Explore

Left: Algebra 1 and Geometry make up 36% of all math classes in high school, but they comprise 55% of math classes taught by novice teachers. Students in those lower-level classes (e.g. students entering below-proficient) are therefore **more likely** to have novice teachers.

Right: The same pattern was **not observed** in ELA. A contributing factor is that some high schools offered very few or no sections of standard English in SY17-18.

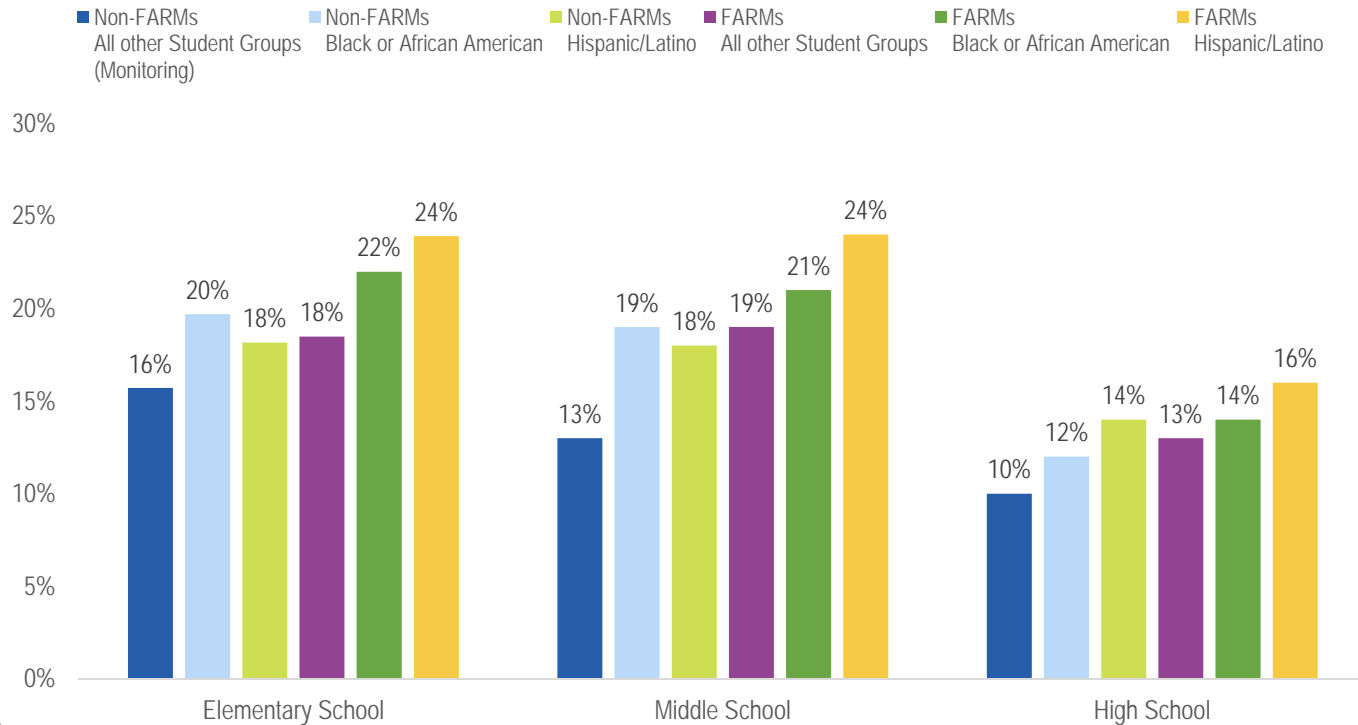


Consider

The MCPS project team discussed the potential reasons why novice teachers are more likely to teach lower-level courses, especially in math (e.g. content expertise needed to teach advanced subjects, teacher preference), and want to explore opportunities to minimize the impact of these factors in creating inequitable student experiences.

In addition to spending more time with 'new to MCPS' novice teachers, *Focus* group students also spend more time with 'new to teaching' novice teachers than *Monitoring* group students

Student Assignment to Novice Teachers (new to teaching)
 ES: Percent of Students with Novice Homeroom Teacher
 MS/HS: Percent of Classes With Novice Teachers



Context

In addition to defining novice teachers as new to MCPS, we can also look at teachers who are new to teaching. This data looks at the likelihood of having novice teachers – new to teaching by student group.

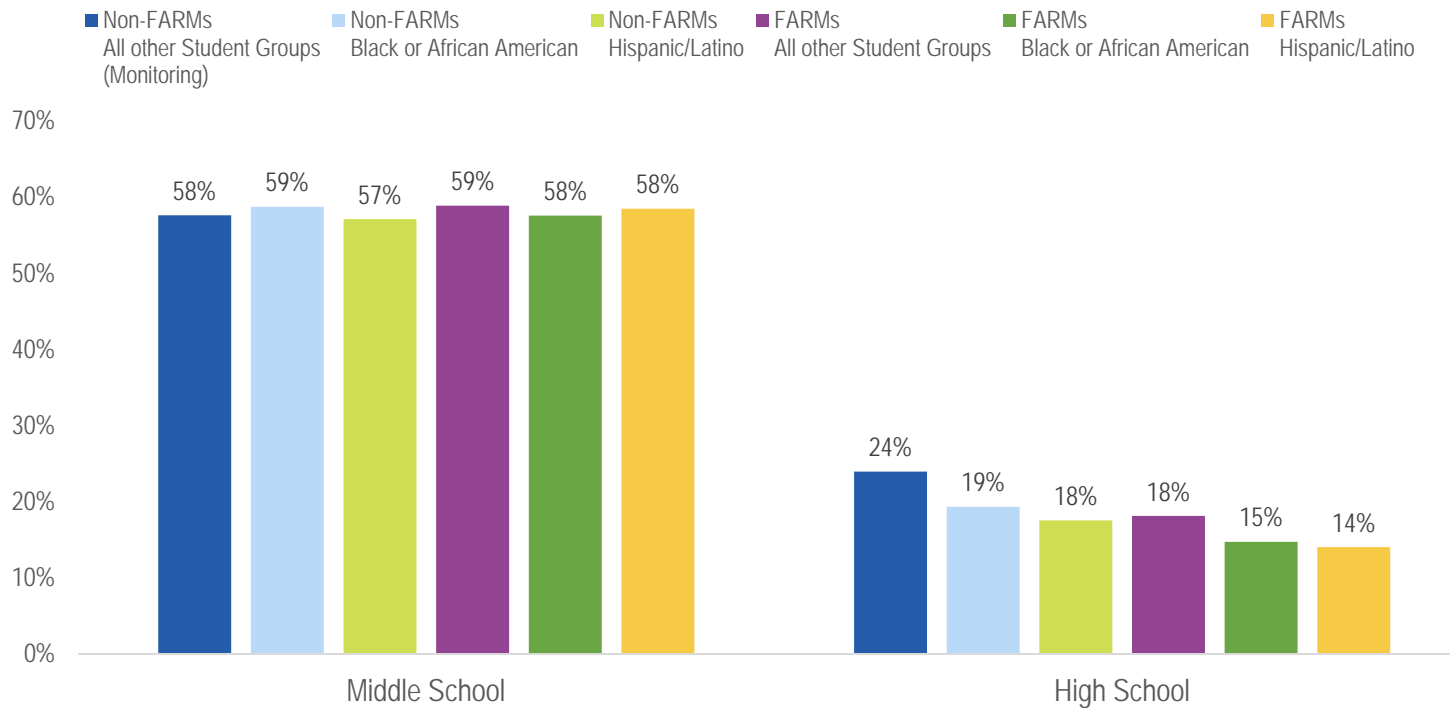


Explore

Across elementary, middle and high school, *Focus* group students are **more likely** than *Monitoring* group students to have novice teachers

In high school, *Focus* group students are less likely to be taught by teacher leaders than their peers

Percent of Students Taught by a Teacher Leader in a Core Subject



Source: MCPS 17-18 Course Schedule, ERS analysis.
 Teacher Leader includes Content Specialists, Resource Teachers, Team Leaders, and Staff Development Teachers.



Context

Next, we explored access to teacher leaders across student groups as another proxy for teaching quality. While this is not a direct measure of teaching quality – and many high-quality teachers are not teacher leaders – we know that typically the teachers who hold these roles have demonstrated high levels of excellence.



Explore

Comparing across student groups, in middle school, all student groups are **equally likely** to be taught by a teacher leader in a core subject.

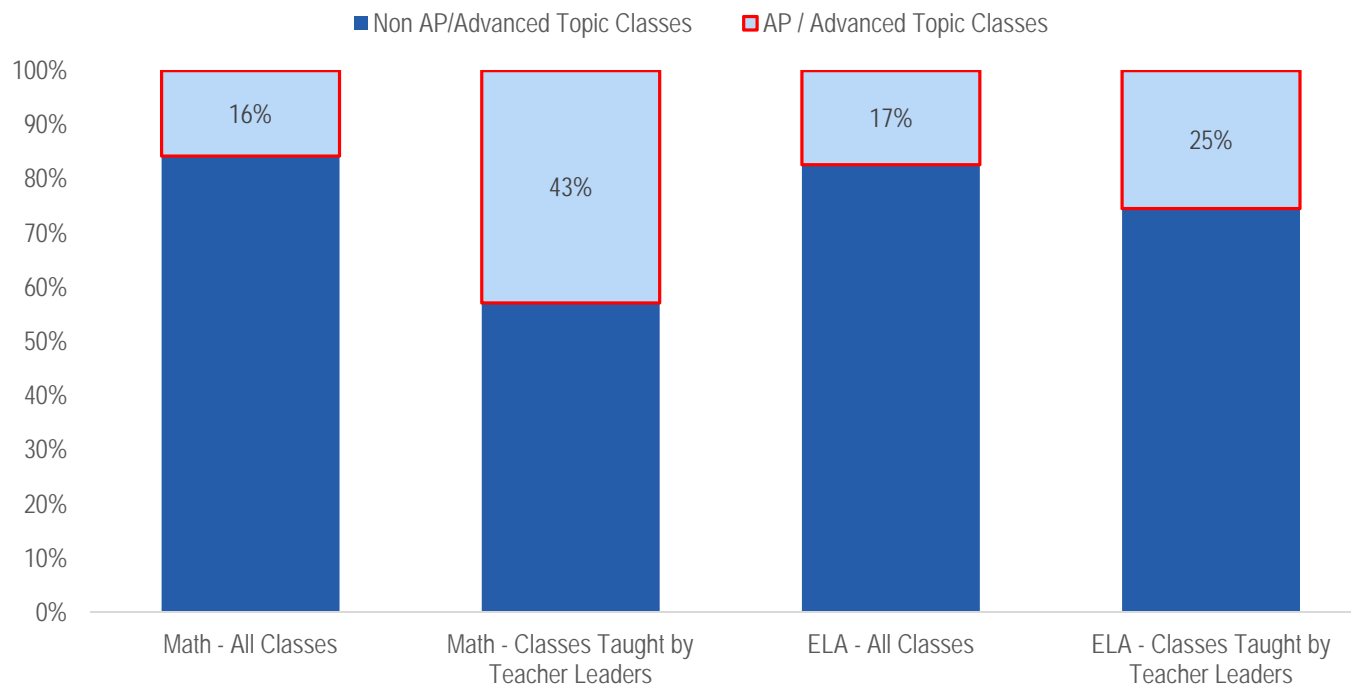
In contrast, **in high schools**, there are differences across student groups. Specifically, 24% of *Monitoring* group students in high school are taught by a teacher leader in at least one core subject, but this is true for less than 20% of all *Focus* group students, including just 14% for Hispanic FARMs students.

This data also shows that middle school students are more likely to have a class with a teacher leader than high school students. This is a function of two factors:

- (1) The staffing allocation formula provides more teacher leader positions to middle schools than to high schools
- (2) On average, middle school teacher leaders teach more periods than high school teacher leaders.

In high school, assignment of teachers leaders to more advanced classes contributes to some student groups having greater access to teacher leaders

Percent of Classes Overall vs. Classes Taught by Teacher Leaders



Context

To help understand why access to teacher leaders differs across student groups in high school, we looked at the **types of classes** teacher leaders tend to teach.

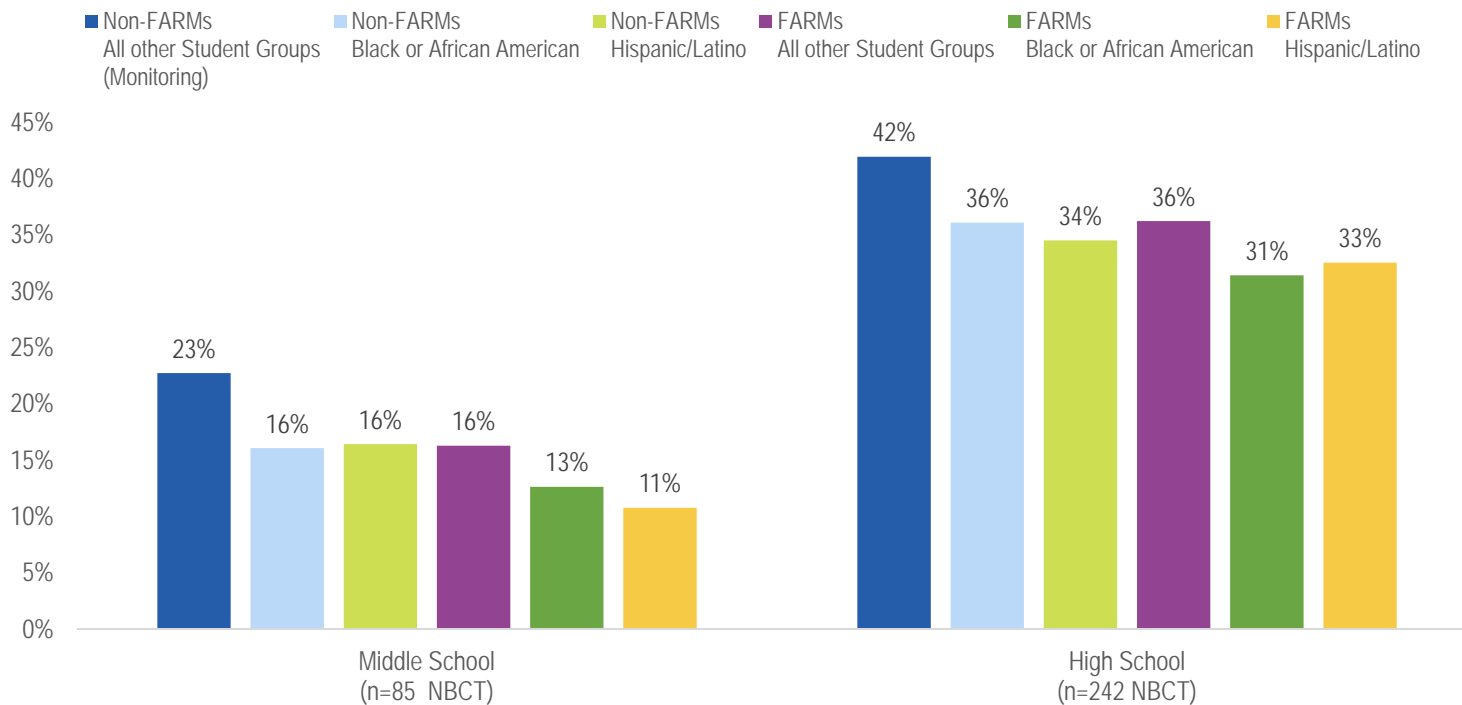


Explore

Teacher leaders in high school are more likely to teach AP classes and advanced topics in both math and ELA. Therefore, students who are less likely to be in those classes (e.g. students entering the year below-proficient and *Focus* group students) will have a lower likelihood of being taught by teacher leaders.

In middle school and high school, *Focus* group students are less likely to be taught by a National Board Certified (NBC) teacher

Percent of Students Taught by a National Board Certified Teacher in a Core Subject



Context

We looked at access to National Board Certified (NBC) teachers as another proxy for teaching quality. We chose this metric as a proxy for 'high-quality' because MCPS currently provides stipends to NBC teachers as part of a strategy to attract and retain high-quality teachers.



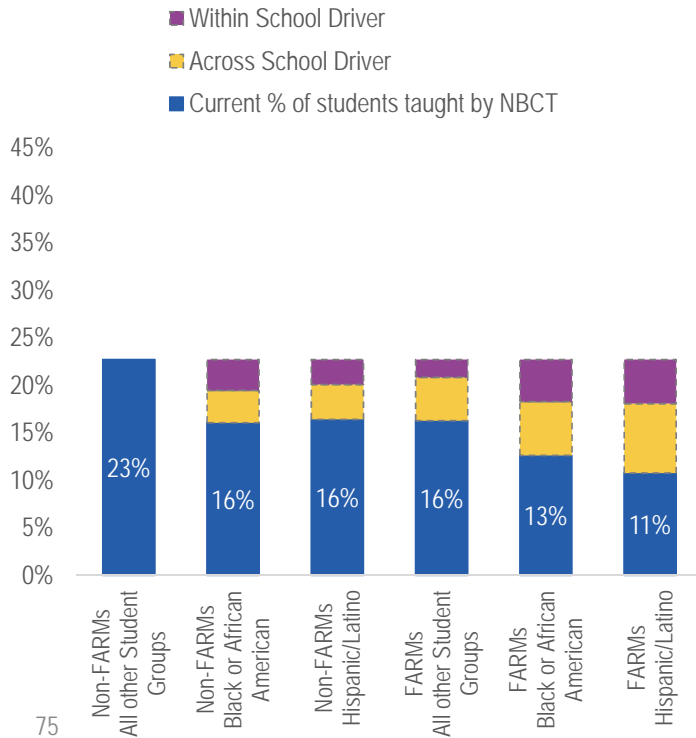
Explore

This chart shows the likelihood that a student has an NBC teacher in any core subject.

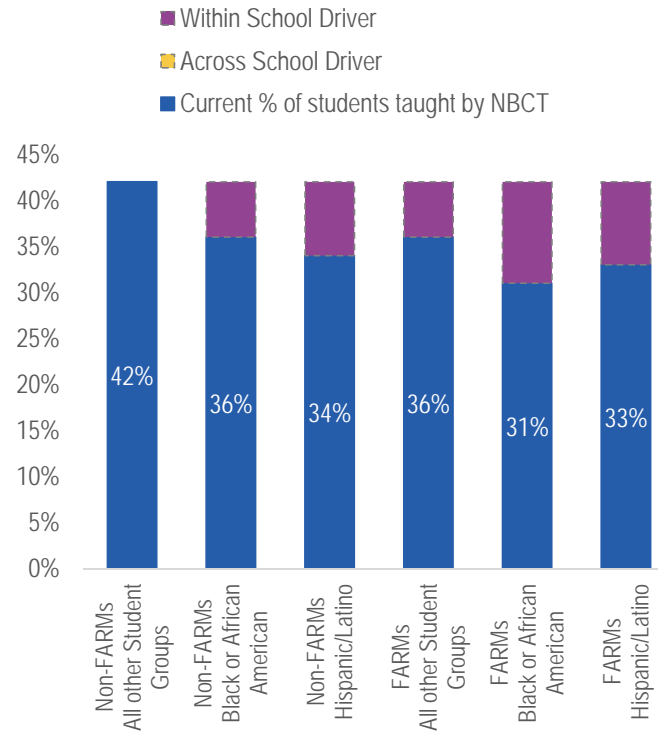
- First, we see that overall access to NBC teachers is **higher in MCPS high schools** because NBC teachers are more concentrated at the high school level.
- Additionally, when we look across student groups, we see that *Focus* group students are **less likely** to have an NBC teacher than *Monitoring* group students in both middle and high school.

Across- and within-school factors drive differences in access to NBC teachers in middle school, but in high school differences are only due to within-school factors

Student Likelihood of Having a National Board Certified Teacher – Middle School



Student Likelihood of Having a National Board Certified Teacher – High School



Source: MCPS 17-18 Course Schedule, ERS analysis.



Context

As with novice teachers, the differences across student groups in access to NBC teachers are driven by a combination of across-school and within-school factors.



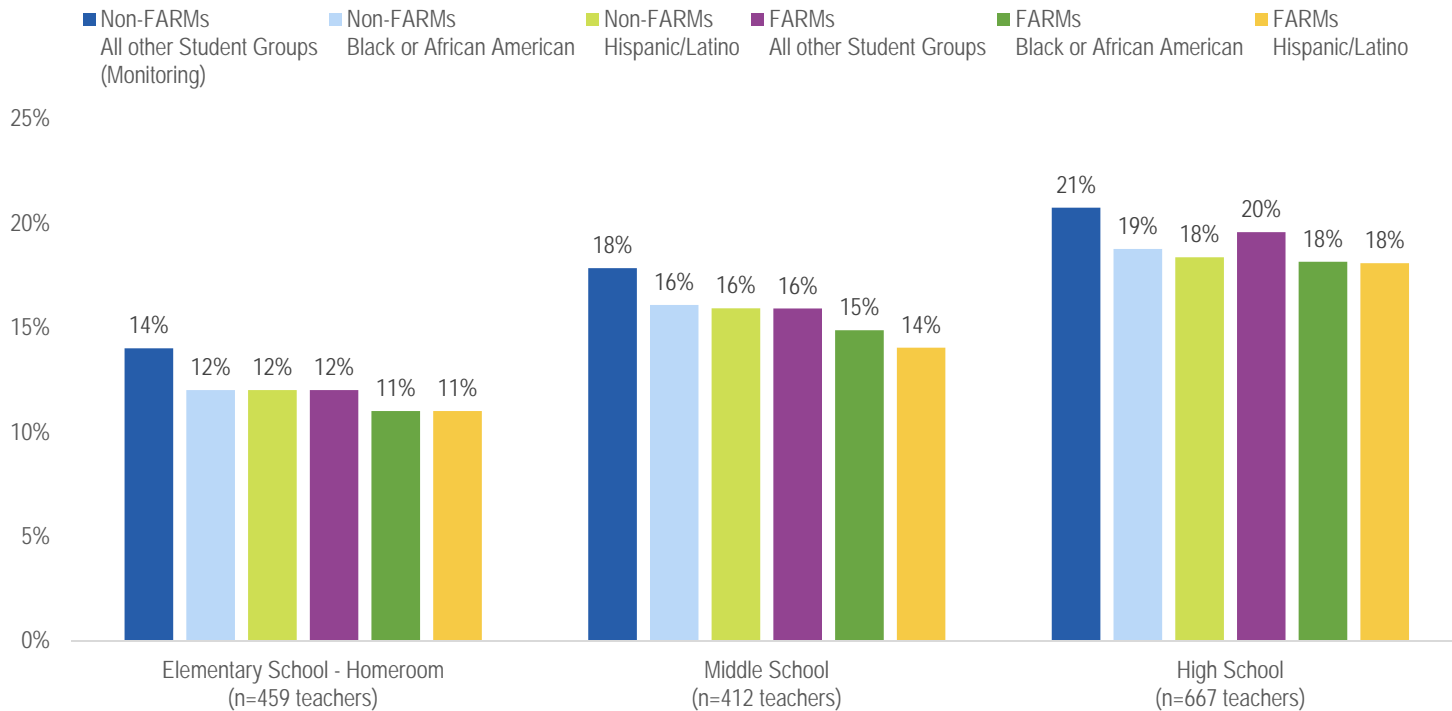
Explore

In middle school, we see that both across- and within-school differences drive the overall difference in student experience. In other words, *across schools*, higher-need middle schools are **less likely** to have NBC teachers than non-*Focus* middle schools. At the same time, *Focus* group students are also **less likely** to be assigned to classes taught by NBC teachers compared to *Monitoring* group peers in their own school.

In high school, this data shows that NBC teachers are **equally likely** to teach in higher- and lower-need schools. The difference in student group experiences are driven entirely by within-school assignment.

Focus group students are slightly less likely to have classes with teachers who have attained advanced degrees

Percent of Classes with Teachers With Advanced Degrees (MA+60, MEQ+60, DR, EDD, JD, and PhD)*



Source: MCPS 17-18 Course Schedule, ERS analysis.
 Note: Counts reflect number of teachers at each school level who are teachers of record for at least one class.
 MA+60 is Master's degree plus 60 credits. MEQ+60 is a Master's degree equivalent plus 60 credits.



Context

The last measure of access to teaching quality that we assessed was a student's likelihood of having classes with teachers who have attained advanced degrees. Similar to NBC teachers, this is an area that MCPS invests in as part of a strategy for attracting and retaining talent.



Explore

This metric shows the percent of classes that students have with teachers who have a MA+60/MEQ+60 or higher degree. At every school level, *Focus group* students are **slightly less likely** to have classes with these teachers than *Monitoring* group students.



Consider

Across multiple proxy measures for teaching quality (teacher experience, teacher role, teacher education/certification), *Focus group* students are less likely to be with highly-effective teachers than *Monitoring* group students. The project team recognized this as an **important equity challenge** for the district to address.

How can we support and retain novice teachers to give *all* students access to high-quality instruction?

- Teachers require differentiated levels of support to deliver high-quality instruction and improve their skills over time.
- Novice teachers in particular require different kinds of support than mid-career and veteran teachers. Novice teacher support should focus on:



- Next, we will explore metrics that help us better understand how novice teacher roles and teaming practices allow for these supports in MCPS today.



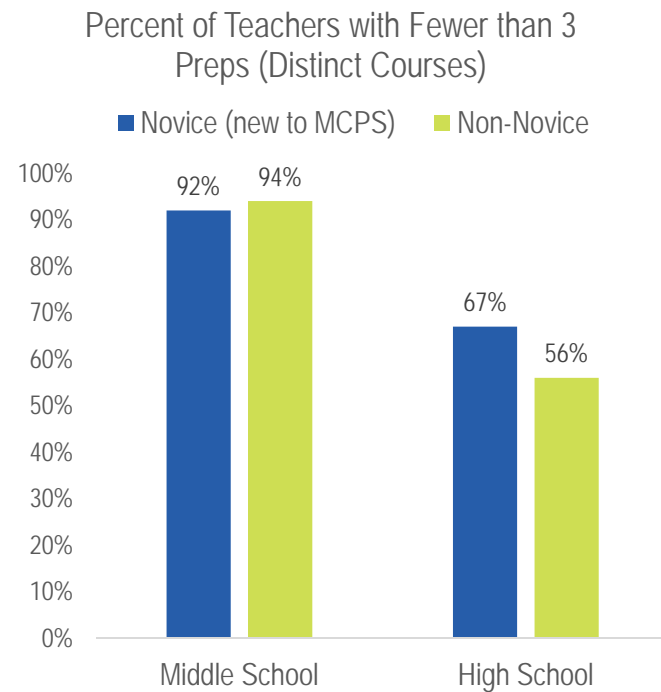
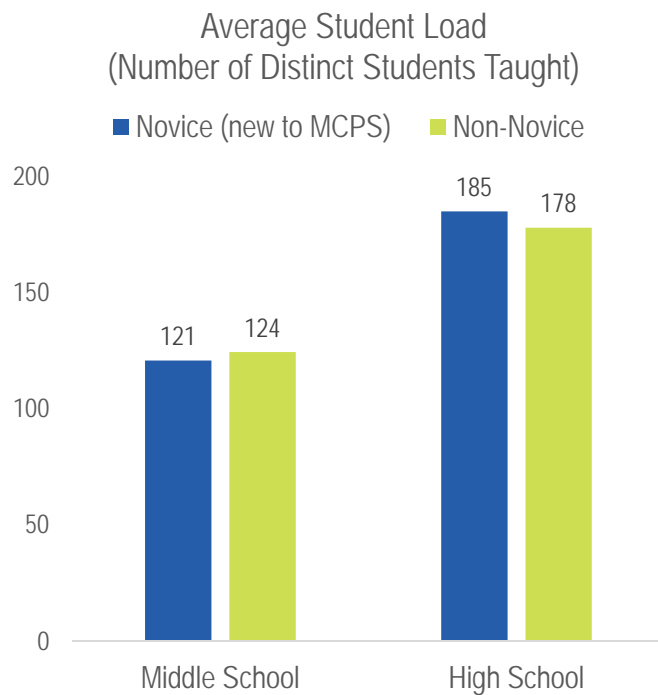
Context

So far, we have looked at teacher assignment as a way to understand equity of access to high-quality teaching. Another important factor to consider is how schools and systems are **supporting and developing** all teachers, and novice teachers in particular, so that all teachers can be successful for their students.

To best support and develop novice teachers in particular, there are two essential components to consider:

- **Shelter:** To improve retention in the first few years, novice teacher roles can be designed to be less complex and better supported.
- **Development:** Schools and systems can invest deliberately in teachers' professional learning and growth so that they are able to build their skillset over time.

On average, novice teachers do not teach reduced student loads or have fewer preps than non-novice teachers



Context

One way to “shelter” novice teachers is by assigning them fewer students (either through a reduced teaching load, or by assigning them to smaller classes). Another shelter strategy is to reduce the number of distinct courses (“preps”) that novice teachers are assigned to teach. This reduces the amount of time teachers need to prepare for their classes. However, note that these strategies may require tradeoffs for the loads/preps for other teachers in the building. School teams must consider these tradeoffs within the larger school context.



Explore

Left: This chart shows that on average, in both middle and high school, novice teacher loads are **not differentiated** from non-novice teacher loads.

Right: This chart shows that novice teachers are **not significantly more likely to teach fewer preps** than non-novice teachers.

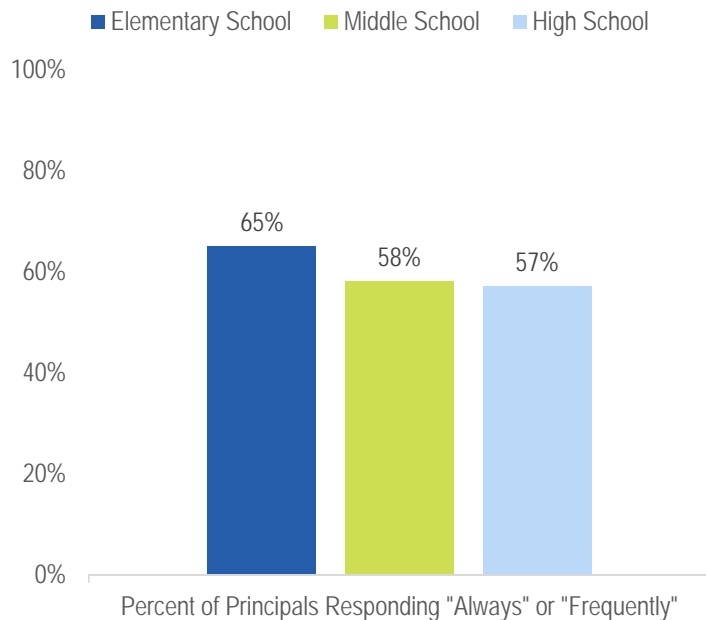


Consider

A potential next step was raised to better understand the impact of these strategies on other teachers in the building, so that district and school teams can think through how to best support novice teachers, while balancing other associated tradeoffs.

Principals say they assign additional staff to support classrooms led by new teachers, but that those positions can have fragmented roles and limited time to support instruction

% Principals responding "Always" or "Frequently" to statement: "I assign additional instructional staff (e.g. co-teachers, paraprofessionals, staff development teachers, reading coaches and math content coaches) to help support classrooms led by new teach



"As a single administrator school my staff development teacher acts as an administrator, to support testing, large class sizes as a teacher of record for a math class, interventions for students at risk, technology support for students and teachers, as well as the duties listed above [in her job description]."

Context

Assigning additional staff to support classrooms led by new teachers can be an effective strategy to both simplify the novice teacher role and provide coaching support.

Explore

Approximately two-thirds of principals who responded to our principal survey said that they **frequently or always** assign other instructional staff to support novice teachers in their classrooms. This response was consistent across school levels.

At the same time, many principals reported that their instructional leaders (often the ones providing push-in support) have **roles that are fragmented** across many responsibilities, and that this impacts the amount of time they have available to support students and teachers.

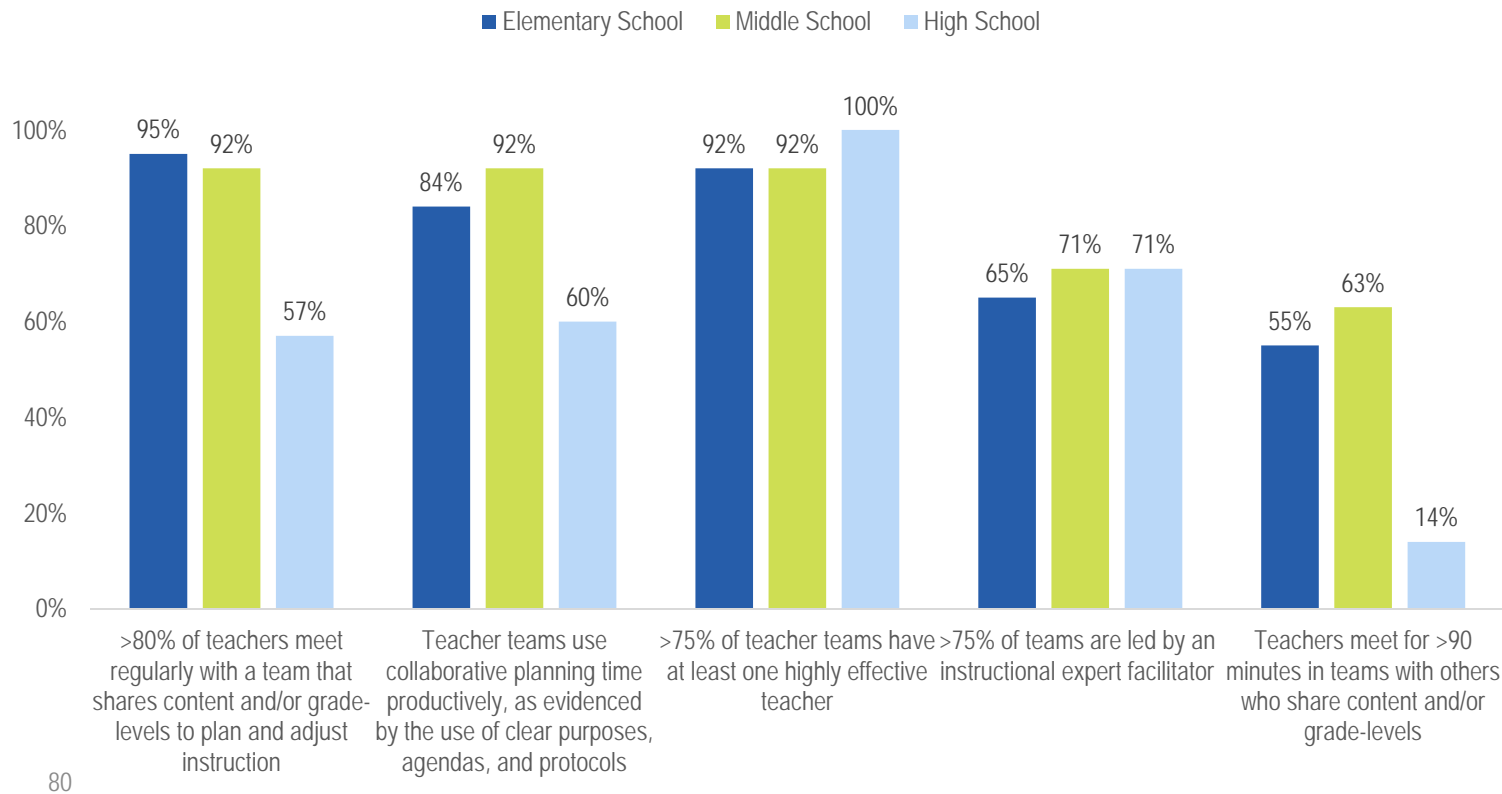
Consider

Based on this data, a potential next step was raised to further explore how schools across the district use different positions to identify best practices and how the district provides guidance to school leaders.

Source: MCPS Principal Survey (90 ES, 25 MS, 15 HS respondents)

Across MCPS, the majority of principals report that teachers meet regularly in teams; however there is variation in how that time is used

Teacher Collaboration: Percent of Principals Responding "Always" or "Frequently"



Source: MCPS Principal Survey (90 ES, 25 MS, 15 HS respondents)



Context

We used the principal survey to understand practices around teacher teams and collaboration, which can be critical supports for teacher growth and development.



Explore

The data from the principal survey shows us what types of **teaming structures** are currently in place in MCPS. Practices that are used consistently include:

- (1) Across all school levels, teacher teams have at least one highly-effective teacher.
- (2) In elementary and middle schools, teachers meet regularly in teams, and use collaborative planning time productively.

The practices that are not taking place as consistently include:

- (1) In high schools, teachers meeting regularly, or using collaborative planning time productively.
- (2) Across all school levels, using instructional experts to lead teams.
- (3) Across all school levels (and particularly in high school), teachers meeting for >90 minutes in teams.



Consider

This data raised a question about how best to support school leaders in creating strong team practices in their schools.



Teaching Quality: Key Questions

What actions can we take at the system-, school-, and classroom-level to:

- Attract and retain high-quality teachers at our highest-need schools, particularly at the middle school level?
- Ensure within-school student and teacher assignment practices create equitable access to our best teachers for *Focus* group and below-proficient students?
- Provide differentiated support to novice teachers to both shelter and develop them as they gain experience in MCPS?
- Ensure high-quality, curriculum-connected professional learning for all teachers that is targeted to their needs and the needs of their students?

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

In MCPS, higher-need schools/students get **more**

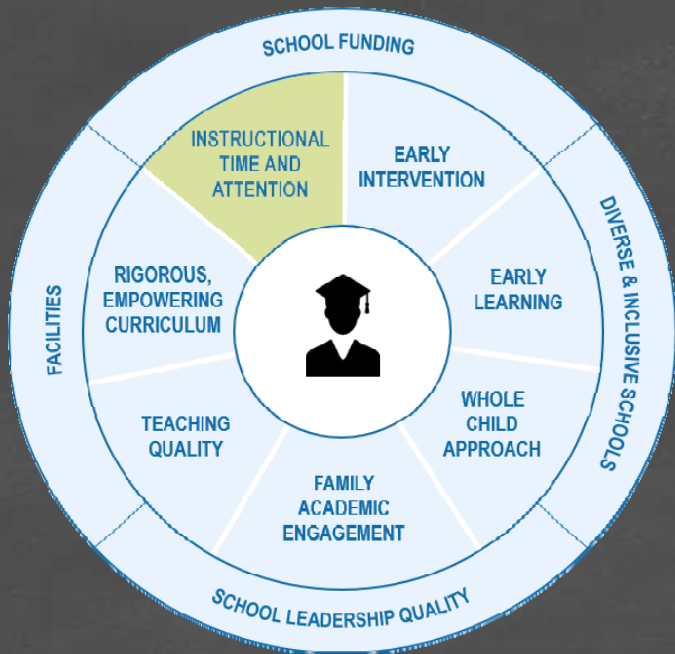
In MCPS, higher-need schools/students get a **similar level**

In MCPS, higher-need schools/students get **less**

You are here

Performance	
School Funding	
Teaching Quality	
Instructional Time and Attention	
Rigorous, Empowering Curriculum	
Diverse and Inclusive Schools and Classrooms	
Whole Child Approach	
School Leadership Quality	

Dimensions of resource equity



Dimensions of Resource Equity

Instructional Time and Attention





Instructional Time and Attention: At a Glance

Vision: All students get the instructional time and teacher attention they need to thrive

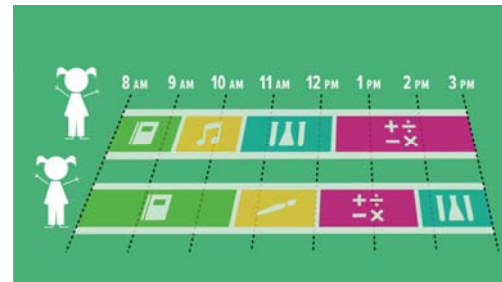
Why it Matters	<ul style="list-style-type: none"> • Strategically increasing students' instructional time and teacher attention to respond to individual learning needs is a powerful lever for improving student outcomes.
How it's Assessed <i>*Indicates topics addressed in our study</i>	<ul style="list-style-type: none"> • Class sizes that allow for differentiated instruction* (class size = the number of students in a given period of instruction) • Group sizes that allow for differentiated instruction (group size = the number of students that are grouped together throughout the day both within and outside the classroom to provide smaller-group instruction) • Students have the time they need to master content* • Student groupings are flexible and based on data on student progress • Student needs are accurately identified and matched to appropriate supports
Study Insights	<ul style="list-style-type: none"> • On average, <i>Focus</i> schools have lower class sizes in core subjects than non-<i>Focus</i> schools. However, there is significant variation in class sizes across schools. • Across the district, there are inconsistent practices related to schools differentiating class sizes for priority subjects, grades, and students. On average, middle schools have more differentiation in class sizes than high schools. • With the exception of middle school ELA classes, middle and high schools do not provide more time to lower-performing students in ELA or math.

What drives differences in how students experience instructional time and attention?

Across Schools

	Elementary	Middle	High
 Higher-Need Schools	51-58 staff per 500 students	47 staff per 500 students	47 staff per 500 students
 Lower-Need Schools	41 staff per 500 students	42 staff per 500 students	40 staff per 500 students

Within Schools



Context

In this section, we explore two factors that impact the amount of instructional time and attention that students receive in different subjects throughout the day.

Across Schools:

MCPS' **differentiated staffing formula** allocates more teachers and staff to higher-need schools. This means that higher-need schools have more staff available to lower class or group sizes for all students in that school.

Within Schools:

Even for two schools that have the same number of staff, **school schedules and staff** can be organized differently so that use of time, class sizes, and group sizes look different across those two schools.

In this section, we will dig into the ways in which students experience "time and attention" differently across level of school need, subject areas, grade level, and student incoming performance.

Principals use various practices to provide differentiated time and attention to their students

% principals reporting 'Always' or 'Frequently' using these practices
Blue shading = >50%

Practice	Overall	ES	MS	HS
Centers: Regularly rotate students through centers to allow for small group instruction.	74%	91%	43%	15%
Push-In Support: Consistently push instructional staff into high-priority classes (high-priority subjects, early/transition grades, and/or courses designed to support students who are struggling) to provide small group instruction.	73%	77%	65%	62%
Class Size Reduction: Reduce class sizes for high-priority areas (high-priority subjects, early/transition grades, and/or supplemental courses design to support students who are struggling).	62%	53%	91%	92%
Tutoring/Intervention: Provide struggling students with one-on-one or small group tutoring regularly during or after the school day.	59%	60%	70%	46%
Supplemental Courses: Enroll struggling students in supplemental courses (e.g., reading in addition to English 1) to provide additional time in areas of need.	40%	20%	100%	69%
Family Model: Regroup students across teachers regularly to target instruction to specific needs.	40%	44%	26%	31%
Additional Coursework: Give students additional schoolwork or assignments in targeted area of need (e.g., afterschool programming, extra homework, etc.).	27%	22%	52%	31%
Additional Course Time: Enroll struggling students in longer blocks for core instruction in the subject in which they are struggling.	16%	14%	22%	15%



Context

There isn't a single 'right' way to differentiate time and attention to best meet student needs – instead, school teams must continually assess and adjust practices based on individual students, so that all students get opportunities to excel. To better understand practices in MCPS, we asked principals if they used various practices that commonly used to target time and attention.



Explore

This table shows the % of principals that responded that they 'Always' or 'Frequently' used the practices described on the left. The most common instructional practices that principals reported using across school levels were **assigning push-in supports** and **reducing class size in high priority areas**.

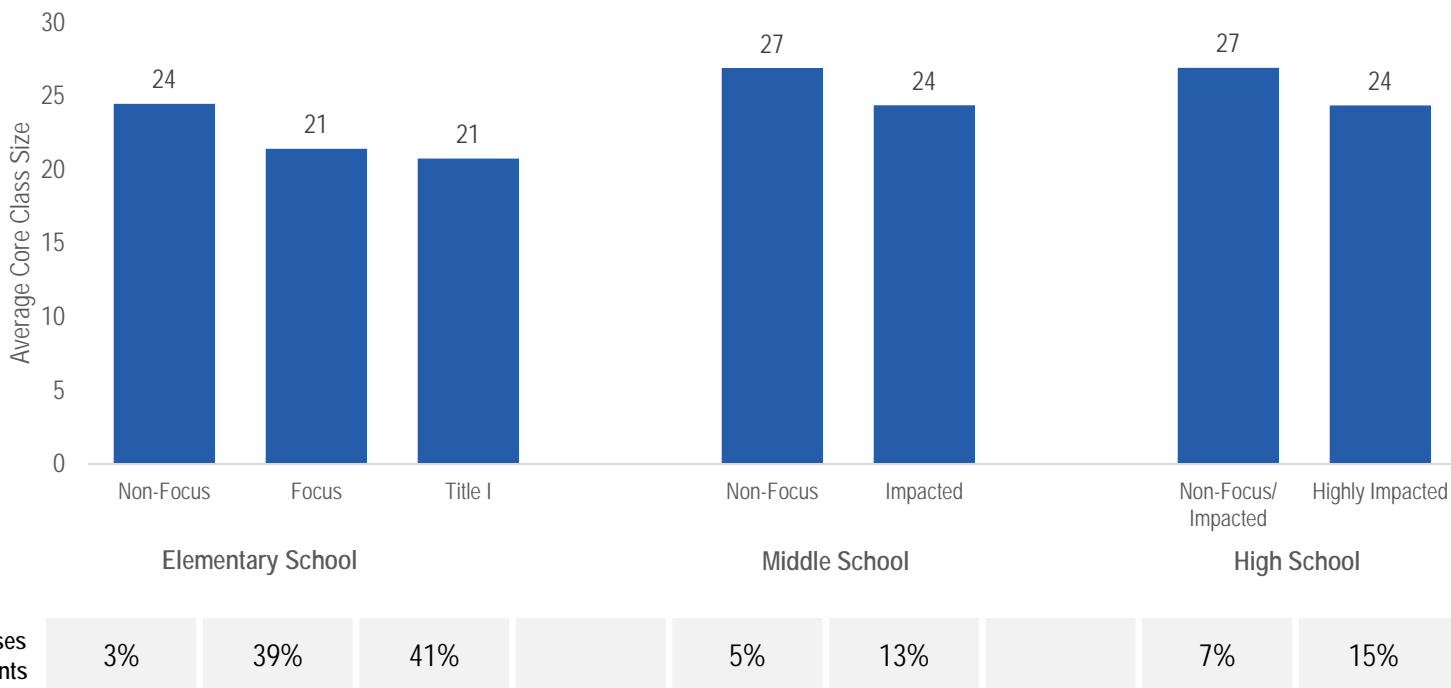


Consider

Given the data available for this study, much of this section is focused on class size and use of time. However, we recognize that these are limited measures that do not give us the full picture of time and attention in MCPS. This raised an important potential next step: measuring and assessing other components of time and attention (e.g. student grouping practices).

On average, class sizes in core subjects in higher-need schools are 3-4 students lower than in non-Focus schools

Average Core Class Size by School Level and School Need



Source: MCPS 17-18 Course Schedule, ERS analysis.

Elementary school class sizes are based on Homeroom sections. Excluded Special ed self-contained classes

Middle/high school includes core classes (ELA, math, science, and social studies) but excludes special education classes, ESOL classes, and "Academic Acceleration for ELLs"

See glossary for definition of school-need designations



Context

We looked at class size as a way to understand instructional attention. As noted earlier, for this study, group size data was not available. While class size is not a complete measure of group size – there may be two adults in a classroom, or students may be getting pulled out for smaller-group supports – it serves as a useful indicator of systematic practices to differentiate instruction for certain students, grades, or content areas.

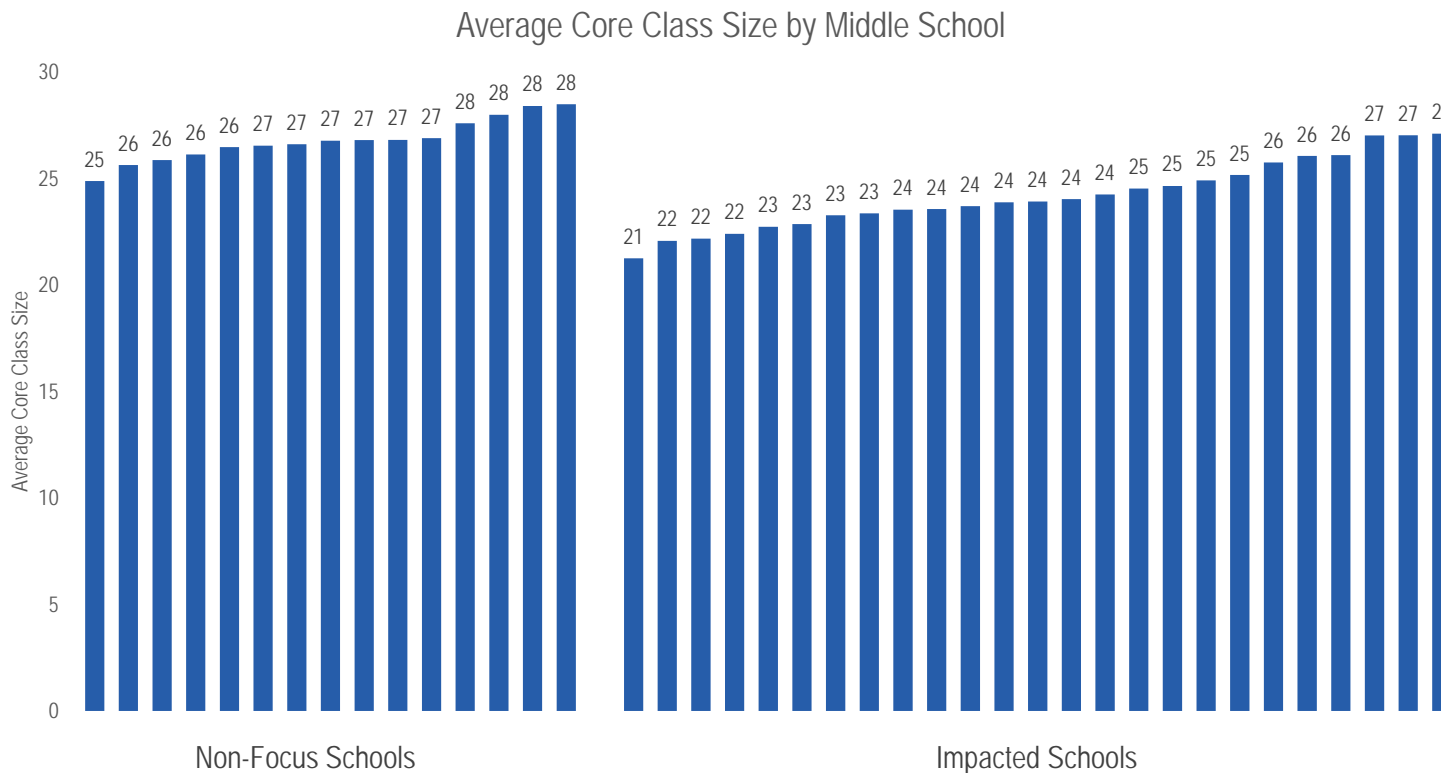


Explore

This graph compares average class size in core subjects (ELA, math, science, and social studies) across school levels and school need. Given that MCPS' staffing formula prioritizes providing additional staff to higher-need elementary schools first, then to higher-need middle and high schools, we would expect to see lower class sizes at higher-need schools, and elementary schools in particular. In the data, we see that is true - on average, elementary schools have **lower class sizes** than secondary schools, and across all school levels, higher-need schools have lower class sizes than non-Focus schools.

In addition to looking at average class size, we look at % of classes with less than 18 students as a proxy to measure 'targeted or significant reductions in class size'. We see that higher-need elementary schools have close to half of their classes below 18 students, but secondary schools have much fewer classes with class sizes this small.

Average class sizes in core subjects varies across schools



Source: MCPS 17-18 Course Schedule, ERS analysis.
 Middle school only. Core classes are ELA, Math, Science, Social Studies.
 Excludes special education classes, ESOL classes, and "Academic Acceleration for ELLs"
 See glossary for definition of school-need designations



Context

Although average class sizes show overall patterns across schools with different levels of need, there can be **significant variation** across schools.

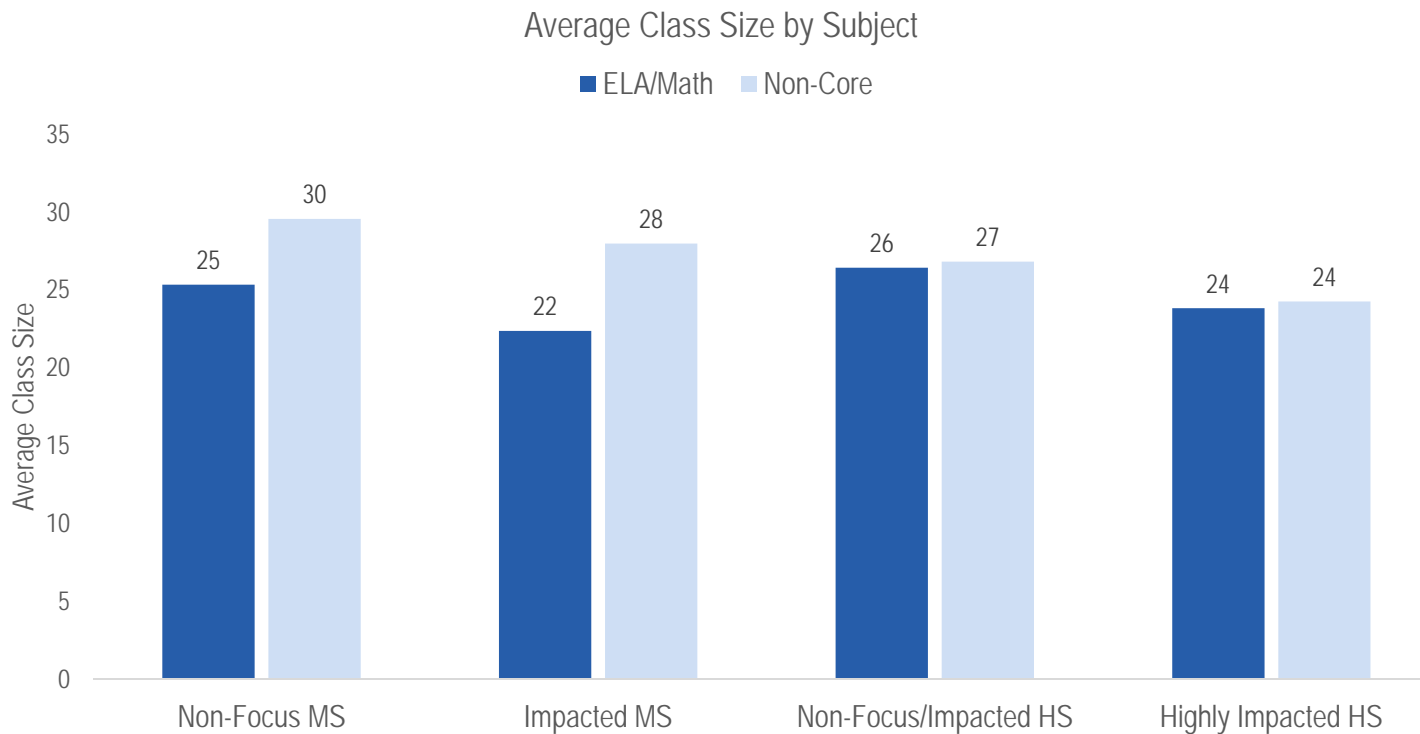


Explore

This graph shows the average class size for core subjects across middle schools. *Non-Focus* middle schools are on the left and impacted middle schools are on the right.

While impacted schools on average tend to have lower class sizes, there is also significant variation across individual schools due to school-specific factors and decisions. For example, some of the impacted middle schools with the highest class sizes in core subjects have an 8-period day instead of a 7-period day. This gives teachers more release time, but results in higher class sizes overall.

Class sizes are lower for high-priority subjects in middle school, but are not lower in high school



Source: MCPS 17-18 Course Schedule, ERS analysis.

Excludes special education classes, ESOL classes, and Academic Acceleration for ELLs.

Non-core subjects include Art/Music, PE/Health, Computer Literacy, Foreign Language, ROTC, Vocational/Career, and Internships.

See glossary for definition of school-need designations



Context

Next, we looked at if class sizes are differentiated by subject, grade level, and students. Here, we explore class size by subject. One way that principals can prioritize smaller class sizes in high-priority subjects for all students is by increasing class sizes in non-core subjects. This allows schools to maintain a variety of instructional offerings while prioritizing resources in foundational subjects.

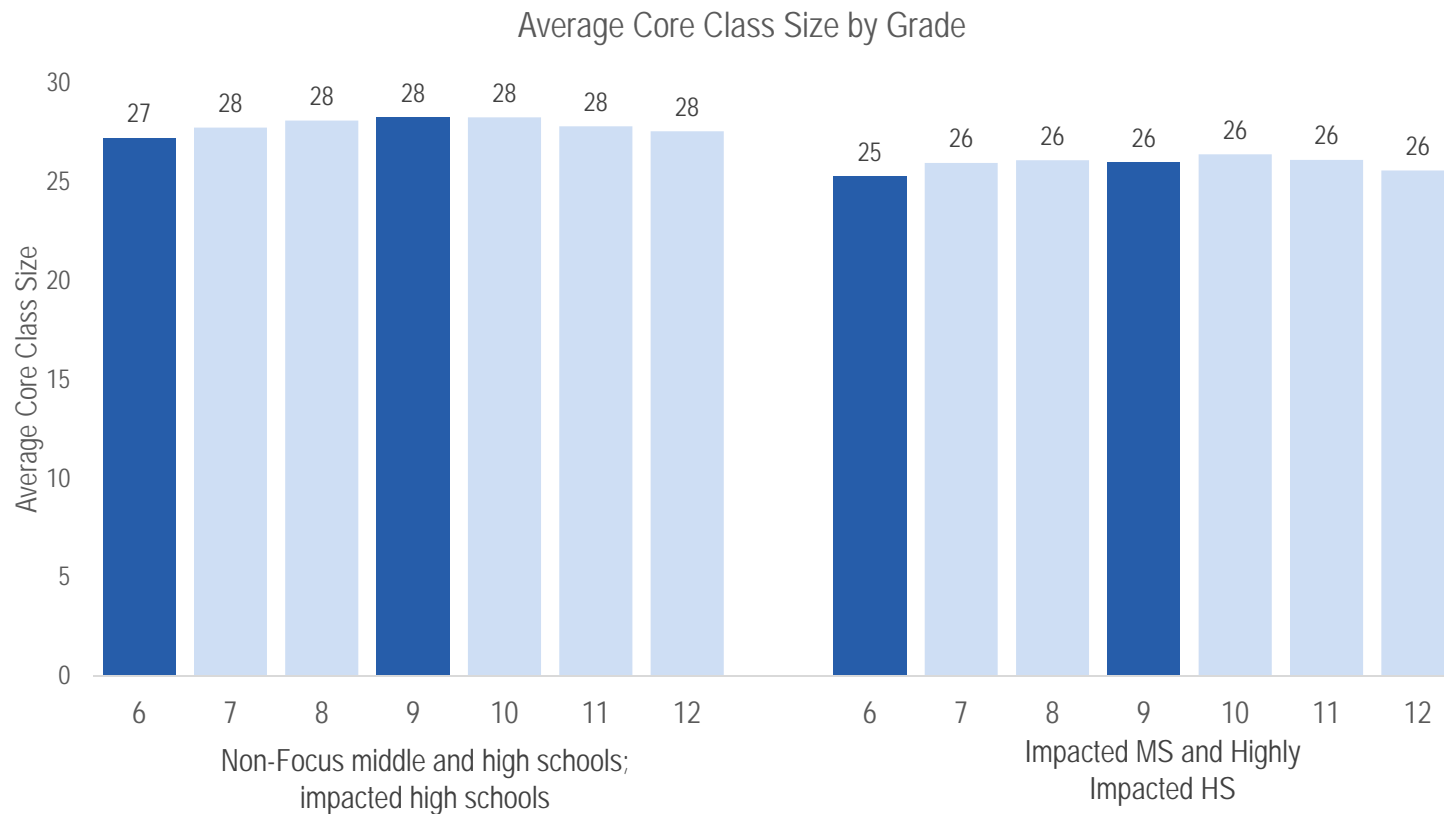


Explore

This graph compares average ELA and math class sizes to average non-core class sizes in core subjects across school levels and school need.

We see that in both non-*Focus* and impacted middle schools, ELA and math class sizes are **lower** than non-core class sizes. However, in high schools, ELA/math class sizes are, on average, **the same** as non-core class sizes in core subjects.

Class sizes in core subjects are not significantly reduced in transition grades (6th and 9th grades)



Context

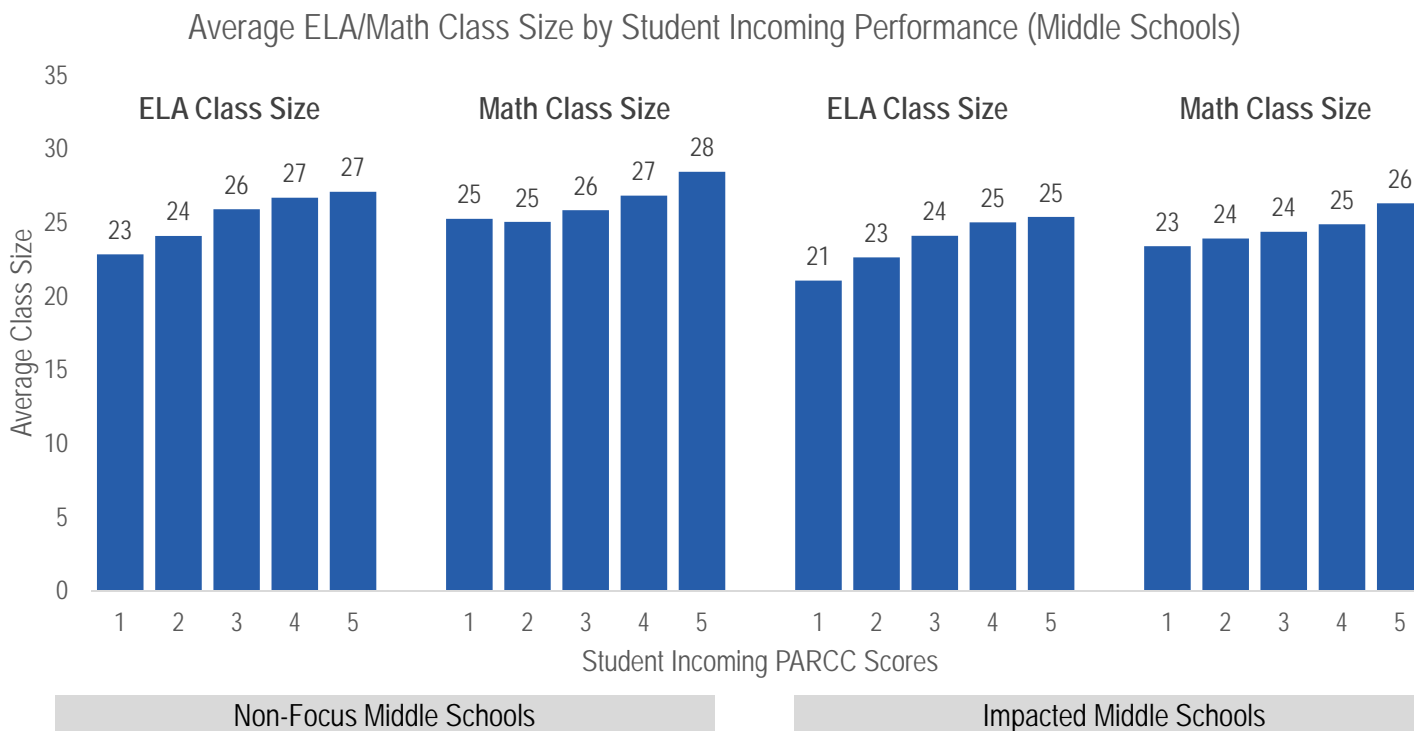
In addition to differentiating class sizes for core subjects, schools may choose to differentiate class sizes in transition grade levels (grades 6 and 9). Research has shown that transition years can be challenging for students, and that ninth grade in particular is a critical year for a student's future academic success. For this reason, school leaders may choose to lower class sizes in these grades to provide more targeted attention to their 6th and 9th grade students.



Explore

This graph compares the average class sizes in core subjects experienced by students of different grade levels in non-Focus and impacted/highly impacted schools. We see that on average, class sizes are **not significantly lower** in transition grades.

In middle school, students with lower incoming performance have smaller class sizes in ELA and math by 3-4 students



Context

Another way that we can assess how school leaders prioritize class size is to see whether students who come into the school year behind are more likely to be in smaller classes.

Note: While lowering class sizes for struggling students does provide increased instructional attention, it's important to note that this strategy often results in lower-performing students being grouped together throughout the day and therefore having less access to peers with a range of skill levels.

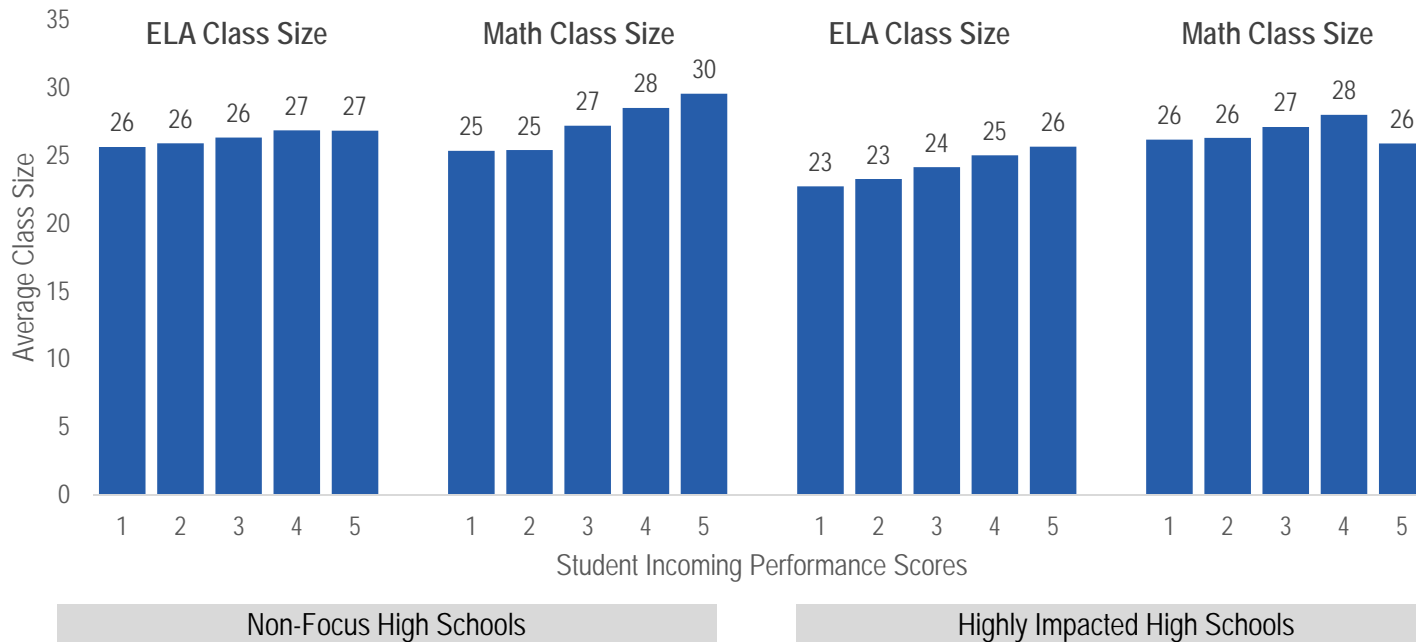
Explore

This chart shows ELA and math class sizes in middle school for students of different incoming performance levels. We see that in both subjects, students with **lower incoming performance** have **smaller class sizes** on average.

Source: MCPS 17-18 Course Schedule, ERS analysis.
Excludes special education classes, ESOL classes, and Academic Acceleration for ELLs
See glossary for definition of school-need designations.

In high school, students with lower incoming performance do not consistently have smaller class sizes in ELA and math

Average ELA/Math Class Size by Student Incoming Performance (High School)
(ELA – 9th and 11th grades; Math – 9th grade only)



Source: MCPS 17-18 Course Schedule, ERS analysis.
Excludes special education classes, ESOL classes, and Academic Acceleration for ELLs
9th grade incoming math scores are based only on students who took Algebra 1.
See glossary for definition of school-need designations.



Explore

The same analysis for high school shows that class sizes are **not consistently differentiated** for students with lower incoming performance.



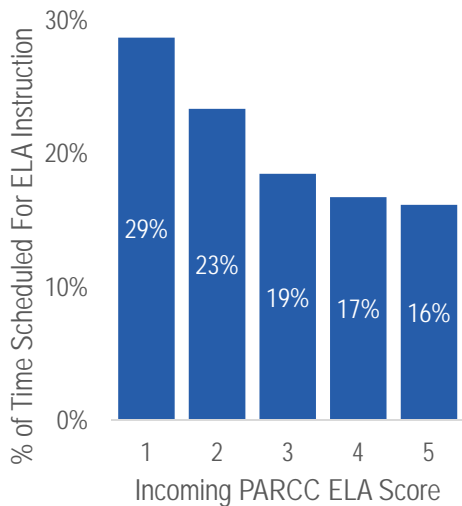
Consider

This series of class size data raised a question about if, and how, schools use staff to differentiate group size in other ways besides lowering class sizes (e.g. push-in support or pull-out groups).

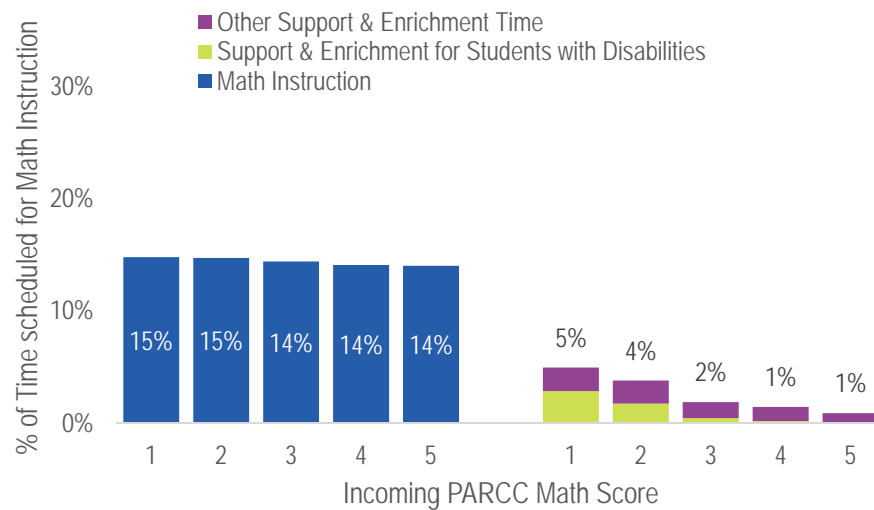
This data also raised a potential next step of studying specific school strategies for differentiating group or class sizes to understand the impact of those strategies, and to identify and share best practices more broadly across the district.

In middle school, students with lower incoming performance receive additional time in ELA, but current schedules leave little opportunity for additional time in math

Percent of Time Scheduled for ELA by Incoming ELA Performance (MS: 6th – 8th grade)



Percent of Time Scheduled for Math by Incoming Math Performance (MS: 6th – 8th grade)



Source: MCPS 17-18 Course Schedule, ERS analysis.

ELA/Math instructional time includes any support & enrichment time that is subject-specific. Does not include after-school, lunch, or other enrichment time that is not scheduled as a part of the school day. For simplicity, we did not show support and enrichment breakdown by incoming ELA performance.



Context

So far, we have looked at class size to understand the extent to which schools provide more individualized attention for specific subjects, grades, or students. Schools can also prioritize resources to increase the amount of time that students spend in certain content areas during the school day.

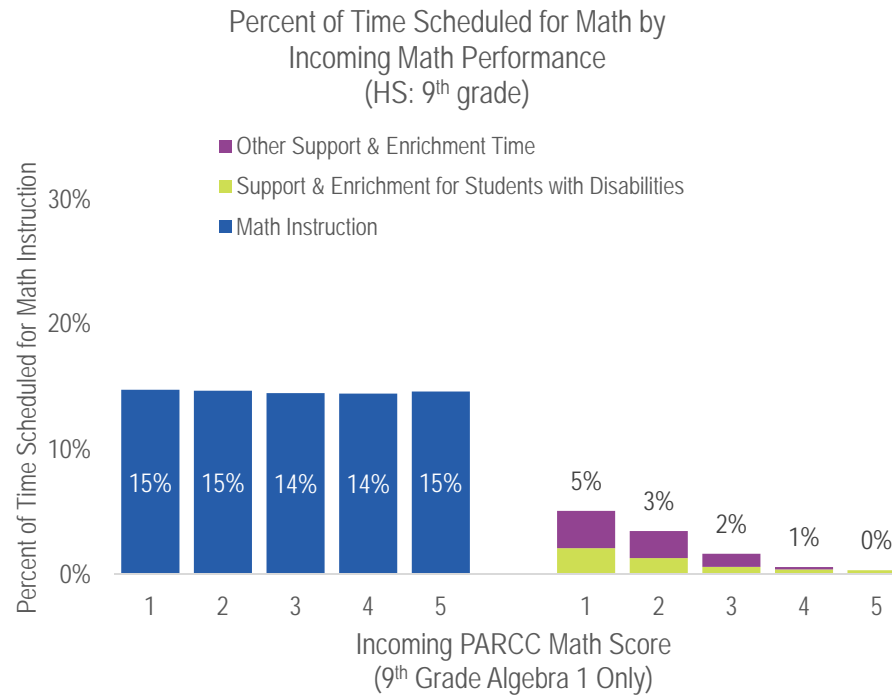
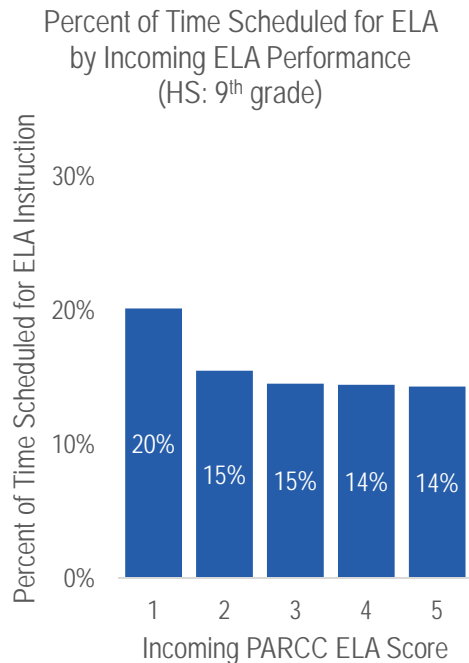


Explore

This chart shows the percent of time that middle school students spend in ELA and math instruction, by incoming performance in that subject.

We see that in middle schools, students with lower incoming performance get more instructional time in ELA, but not in math. Outside of dedicated math instruction, students with lower incoming performance may have additional time in support and enrichment classes, which, depending on the school, may be used for content mastery. The data on the exact use of this support and enrichment time was unavailable for this study.

In high school, students in ninth grade who have lower incoming performance occasionally get differentiated time in ELA; but current schedules leave little opportunity for additional time in math



Source: MCPS 17-18 Course Schedule, ERS analysis. Includes 9th graders only. Incoming math scores are based on Algebra 1; students who took other exams are not included. ELA/Math instructional time includes any support & enrichment time that is subject-specific. Does not include after-school, lunch, or other enrichment time that is not scheduled as a part of the school day. For simplicity, we did not show support and enrichment breakdown by incoming ELA performance.



Explore

The same analysis for high school shows that there is still **some differentiation of time** for students with lower incoming performance in ELA, though less than at the middle school level. Similarly to middle school, there are limited opportunities for students with lower incoming performance to receive extra time in math.



Consider

Based on this data, MCPS team members were interested in ways that schools could provide additional supports (additional time and otherwise) for students with lower incoming performance, especially in math.

In middle and high schools, some teacher roles are teacher-of-record for fewer than five classes, allowing time for push-in, intervention, and other supports

Context

In addition to classroom teachers, schools have other teaching positions that can be used to support students and teachers. The data to the left looks at the numbers of periods for which a teacher is the 'teacher-of-record' (TOR), (i.e. assigned as the lead teacher for a class) to understand how different teacher positions are used across the district. The places where teachers are TOR for fewer than 5 periods represents time that teachers can provide other supports outside of directly leading a class; this use of staff is not captured in our class size data.

Explore

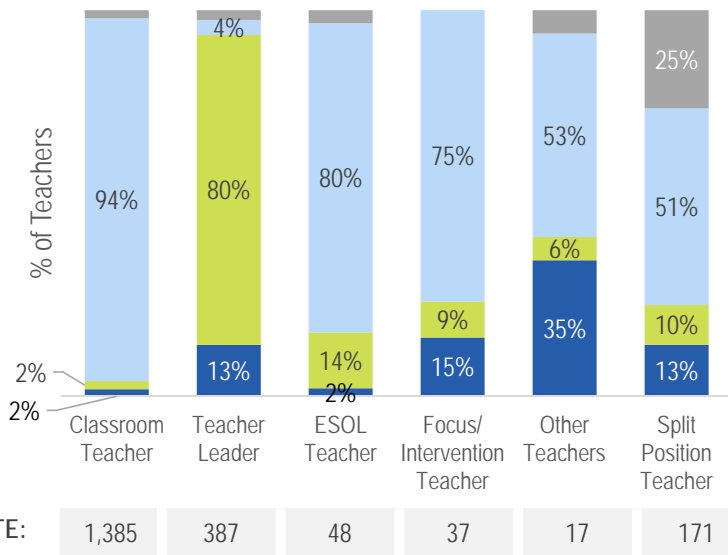
The vast majority of classroom teachers in middle and high school are TOR for a full teaching load, represented by the light blue portions of the bars. Most teacher leaders are TOR for less than a full load, consistent with MCPS staffing guidelines. This allows them to use non-teaching time to **support other teachers**. Across remaining teaching positions, there is variation in how many teachers are TOR for a full load by position and school level.

Consider

After seeing this data, a need was identified to better understand the different ways that teacher positions can and are being used when they do not teach a full load as a way to identify and share best practices across schools.

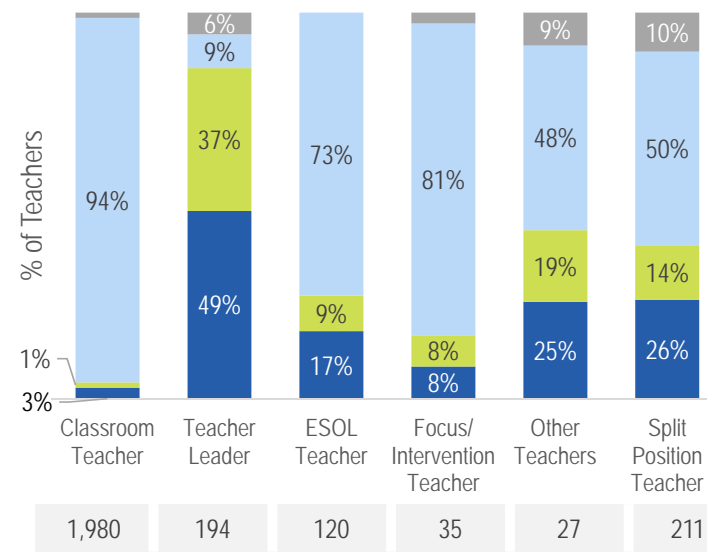
Number of Periods Taught by Teacher Position (Middle School)

■ Less than 4 ■ Exactly 4 ■ Greater than 4 ■ Not Teacher of Record



Number of Periods Taught by Teacher Position (High School)

■ Less than 4 ■ Exactly 4 ■ Greater than 4 ■ Not Teacher of Record



Source: MCPS 17-18 Course Schedule, ERS analysis. Charts show full-time FTE only.

Teacher Leader includes Resource Teachers, Content Specialists, Team Leaders, and Staff Development Teachers.

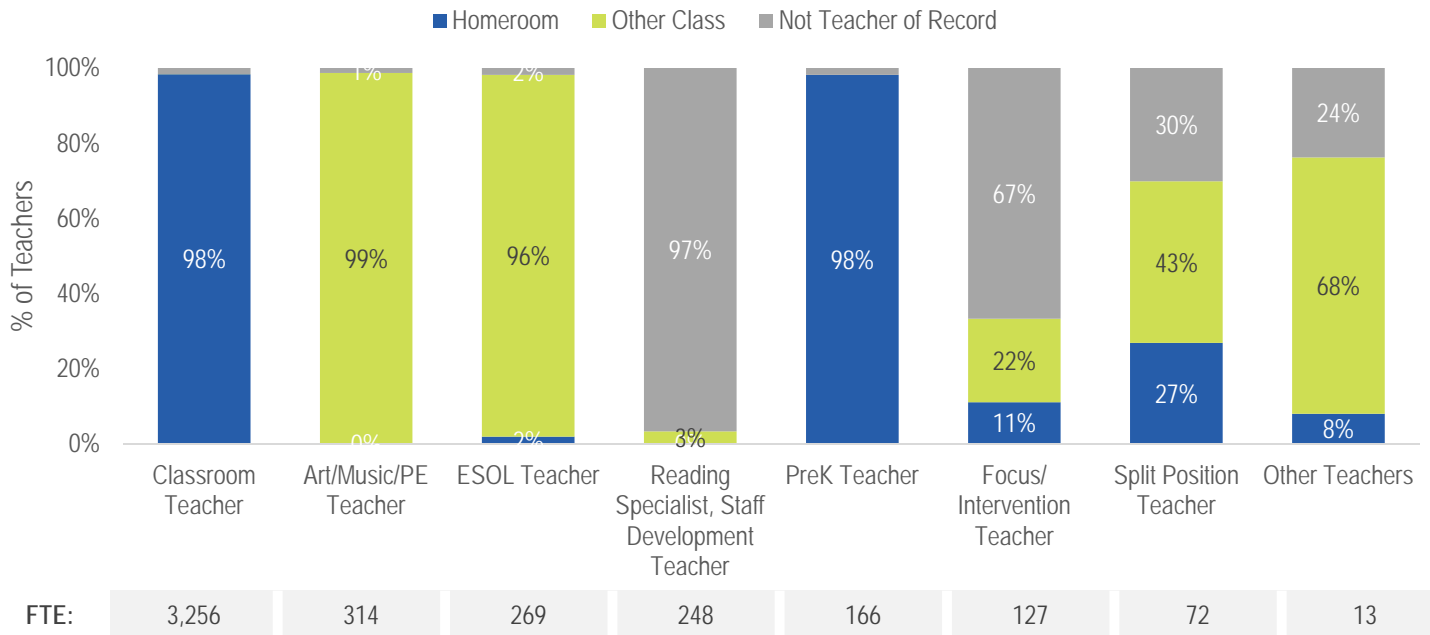
Other Teachers includes Alternative Programs Teachers, Special Programs Teachers, Career Preparation Teachers, and Career Support Teachers.

Split Position Teacher includes teachers whose FTE is split across multiple teacher roles.

Teacher of Record = teacher assigned as lead teacher to a class in MCPS course schedule data

In elementary schools, non-classroom teachers are used in a variety of ways to support instruction

Types of Classes Taught by Teacher Position (Elementary Schools)



Source: MCPS 17-18 Course Schedule, ERS analysis. Chart shows full-time FTE only. Split Position Teacher includes teachers whose FTE is split across multiple teacher roles. Other Teachers includes Special Programs Teachers, Reading Initiative Teachers, and Reading Support Teachers. Teacher of Record = teacher assigned as lead teacher to a class in MCPS course schedule data



Context

A similar analysis for elementary schools looks at whether teachers are the teacher-of-record for a homeroom class, for another class (e.g. subject-specific or specials), or are not the teacher-of-record for any class. Like in the previous analysis, this gives us a sense of how positions are used differently to support instruction.



Explore

This chart shows that almost all classroom and Pre-K teachers are homeroom teachers. Almost all specials teachers and ESOL teachers are the teacher-of-record for a non-homeroom class. Most teacher leaders are not a teacher-of-record, and other teaching positions are used in a wide variety of ways.



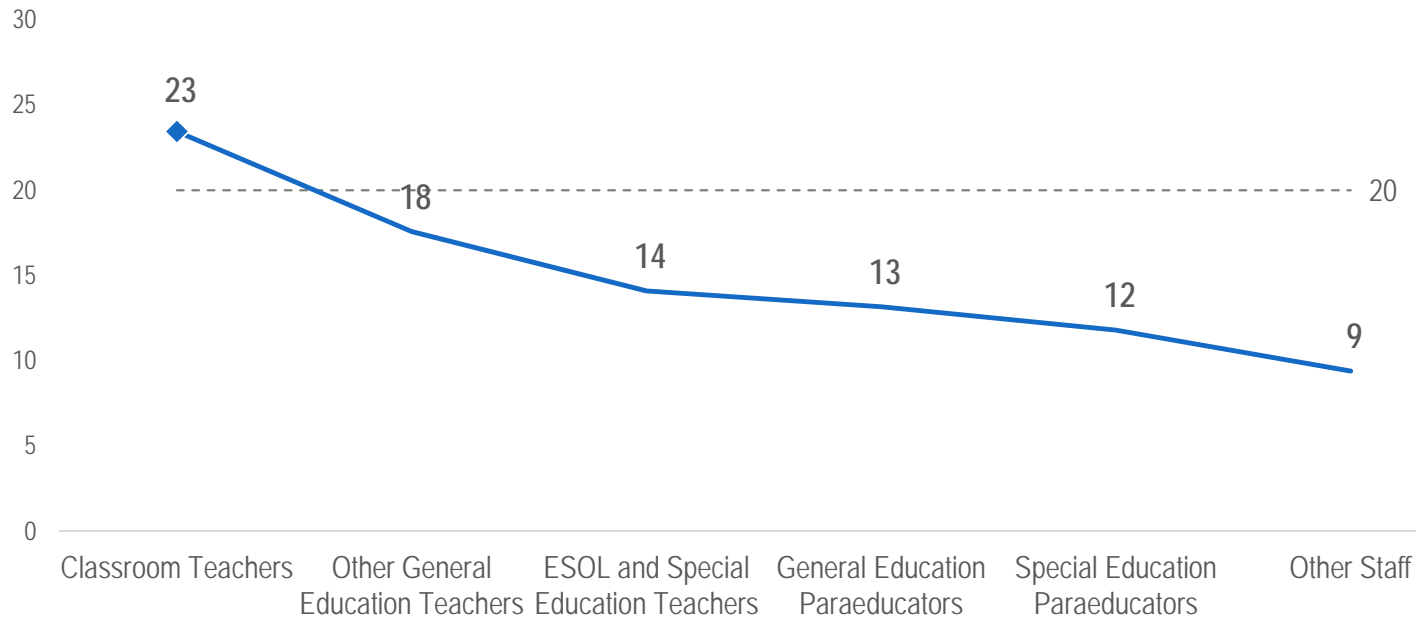
Consider

After seeing this data, a need was identified to better understand the **specific models** for how principals use **support teachers**, whether certain practices are connected to better student performance, and what kinds of support or resources can help school leaders make strategic staffing decisions that support their school improvement priorities.

Elementary Schools: In addition to teachers, many other staff in the building can support students throughout the day

Student-to-Adult Ratio: Elementary Schools

----- Average Homeroom Class Size — Students per FTE



Source: MCPS SY17-18 Expenditures, ERS analysis. Includes school-reported positions only. Other Gen Ed Teachers include elective, focus, academic intervention teachers and teacher leaders. Other Staff includes pupil services, media specialist, and administrative/operations staff.



Context

In addition to teachers, schools have a variety of other instructional and non-instructional staff in their building to support students. While these staff play different roles in the ways that they serve students, they all interact with students throughout the day and contribute to building school culture and climate. As we think about time and attention for students, it is important to consider not only class and group sizes, but also how all staff are used to support students.



Explore

This graph shows the **student-to-adult ratio in elementary schools**, and how this decreases as more positions are included.

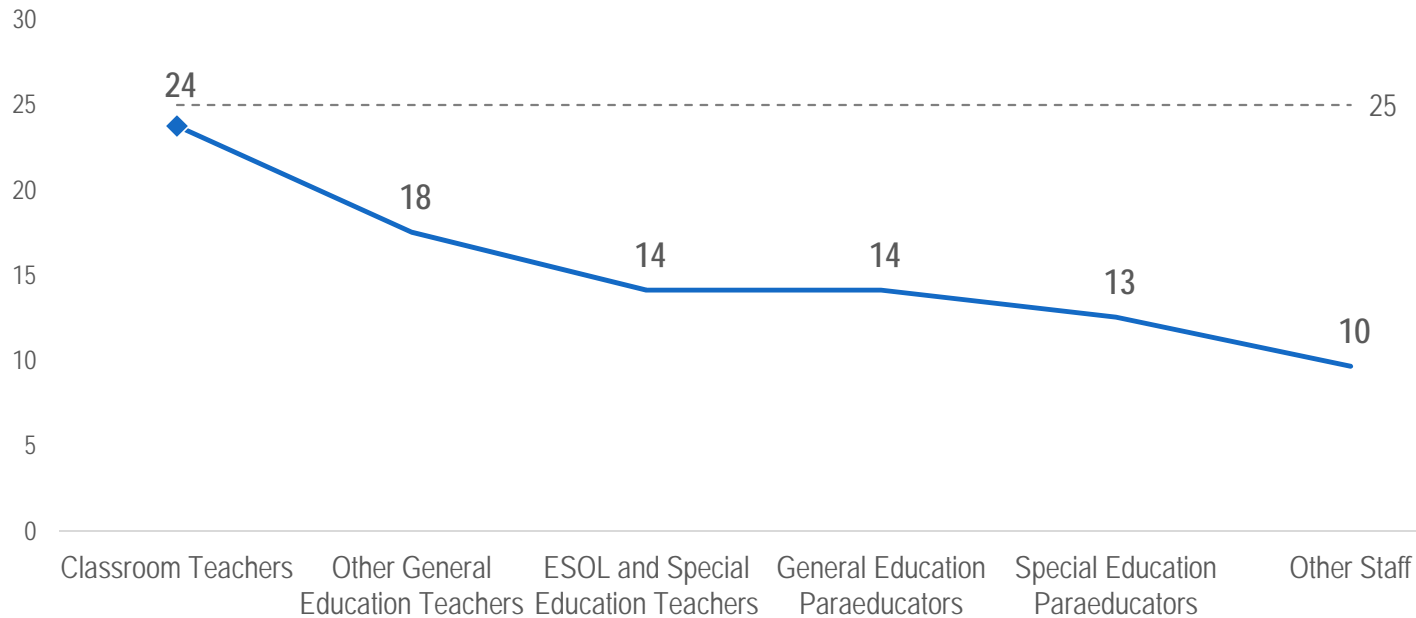
For example, looking at only classroom teachers, the average elementary school has 23 students per teacher. After adding in other general education teachers, the student-to-teacher ratio decreases by 5, to 18. When all other instructional and non-instructional staff are included, the overall student-to-adult ratio is 9 – less than half the starting ratio based on only classroom teachers.

Middle Schools:

In addition to teachers, many other staff in the building can support students throughout the day

Student-to-Adult Ratio: Middle Schools

----- Average Core Class Size — Students per FTE



Explore

This graph shows the **student-to-adult ratio** in middle schools, and how this decreases as more positions are included.

For example, looking at only classroom teachers, the average middle school has 24 students per teacher. After adding in other general education teachers, the student-to-teacher ratio decreases by 6, to 18. When all other instructional and non-instructional staff are included, the overall student-to-adult ratio is 10.

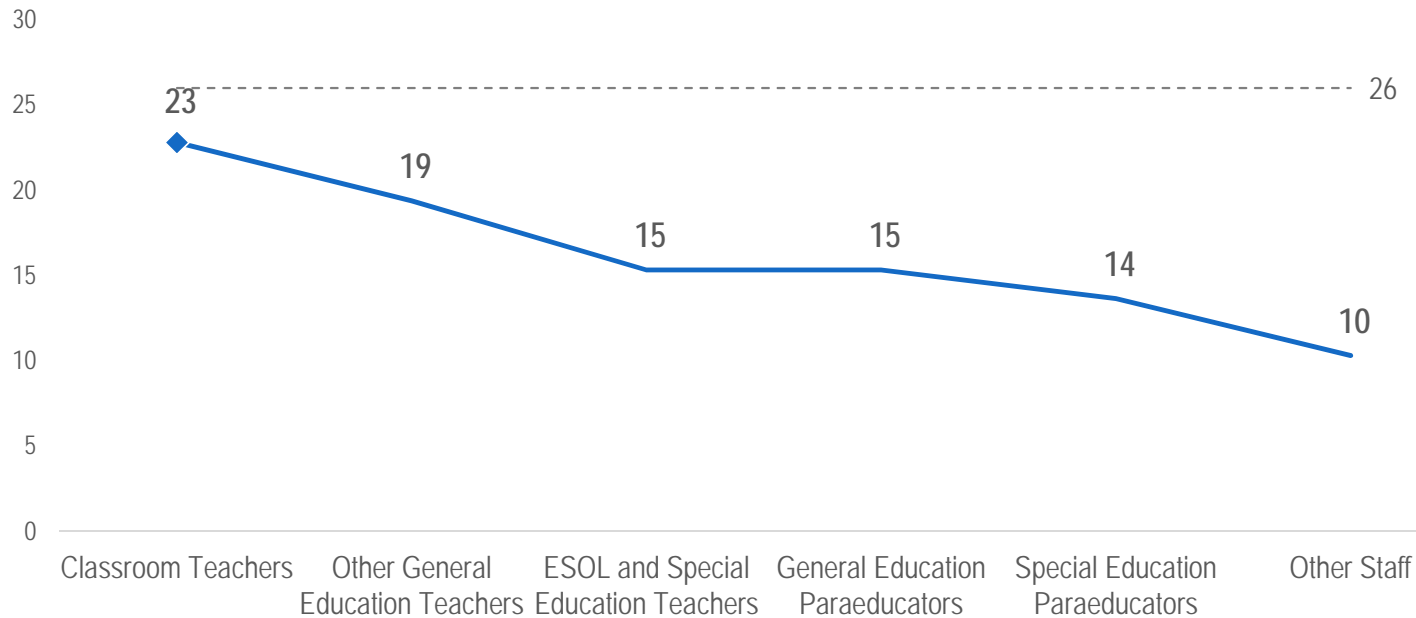
*Source: MCPS SY17-18 Expenditures, ERS analysis. Includes school-reported positions only.
 Other Gen Ed Teachers include elective, focus, academic intervention teachers and teacher leaders.
 Other Staff includes pupil services, media specialist, and administrative/operations staff.
 Core class size excludes special education classes, ESOL classes, and Academic Acceleration for ELLs.*

High Schools:

In addition to teachers, many other staff in the building can support students throughout the day

Student-to-Adult Ratio: High Schools

----- Average Core Class Size — Students per FTE



Source: MCPS SY17-18 Expenditures, ERS analysis. Includes school-reported positions only.
 Other Gen Ed Teachers include elective, focus, academic intervention teachers and teacher leaders.
 Other Staff includes pupil services, media specialist, and administrative/operations staff.
 Core class size excludes special education classes, ESOL classes, and Academic Acceleration for ELLs.



Explore

This graph shows the **student-to-adult ratio in high schools**, and how this decreases as more positions are included.

For example, looking at only classroom teachers, the average high school has 23 students per teacher. After adding in other general education teachers, the student-to-teacher ratio decreases by 4, to 19. When all other instructional and non-instructional staff are included, the overall student-to-adult ratio is 10.



Consider

Given this data, a need was identified to better understand how different schools use all staff in their building to support students throughout the day, as a way to identify and share best practices across the system.



Instructional Time and Attention: Key Questions

- Looking at class size alone provides a limited view into time and attention practices at MCPS – therefore, how can we best measure and assess other practices happening across the district? (e.g. student grouping practices)
- How are schools currently using non-classroom teacher positions to provide differentiated instruction to students?
- How are schools currently using the extra time provided to students who are below-proficient in ELA?
- Are students who are below-proficient in math given additional instructional time to catch-up? If not, are there opportunities to create this additional instructional time, while still giving students the opportunity to participate in electives, extracurriculars, and other enrichment?
- How we can we identify and share best practices across schools to better support our students?

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

- In MCPS, higher-need schools/students get **more**
- In MCPS, higher-need schools/students get a **similar level**
- In MCPS, higher-need schools/students get **less**

You are here

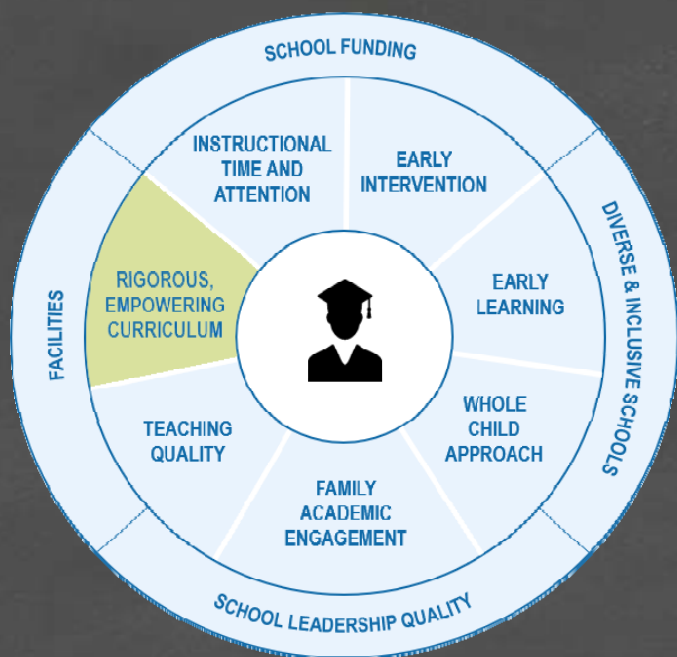
Performance
School Funding
Teaching Quality
Instructional Time and Attention
Rigorous, Empowering Curriculum
Diverse and Inclusive Schools and Classrooms
Whole Child Approach
School Leadership Quality

Dimensions of resource equity



Dimensions of Resource Equity

Access to Rigorous and Empowering Content





Rigorous, Empowering Curriculum: At a Glance

Vision: All students are held to high expectations and have access to – and succeed in – rich and empowering curriculum materials, coursework and class offerings

<p>Why it Matters</p>	<p>More rigorous academic content – from underlying curriculum to course materials and assignments – leads to better student achievement.</p>
<p>How it's Assessed</p> <p><i>*Indicates topics addressed in our study</i></p>	<ul style="list-style-type: none"> • Class assignment* • Class offerings* • Instructional practices • Instructional materials • Student assignments • Grading practices
<p>Study Insights</p>	<ul style="list-style-type: none"> • MCPS has defined advanced course pathways for math and ELA, starting as early as 4th grade with compacted math • For all student groups across the district, enrollment in the most advanced math pathway decreases from 4th grade through the end of middle school. This suggests that students may not be getting the support they need to succeed in this pathway. • Additionally, <i>Focus</i> group students are less likely than <i>Monitoring</i> group students to be enrolled in the advanced pathway. This is driven by two main factors: (1) On average, <i>Focus</i> group students have lower incoming performance scores than <i>Monitoring</i> group students, and (2) <i>Focus</i> group students with the same performance scores as their <i>Monitoring</i> group peers are less likely to be placed in the advanced pathway the following school year.

What is the course landscape for math and ELA?

Grade:	K - 3	4	5	6	7	8	9	10	11	12	
Math Pathways	Path 1		Math 4/5	Math 5/6	Math Investigations	Algebra 1	Geometry	Algebra 2	Precalc	AP	AP
	Path 2	Math K - 3	Math 4	Math 5	Math 6	Math Investigations	Algebra 1	Geometry	Algebra 2	Precalc	Calc / Stat / AP
	Path 3					Math 7	Math 8	Algebra 1	Geometry	Algebra 2	Precalc

Grade:	K - 3	4	5	6	7	8	9	10	11	12	
ELA Pathways	Path 1								AP English	AP English	
	Path 2	Reading / Writing	Reading / Writing	Reading / Writing	Adv English	Adv English	Adv English	Honors English	Honors English	Honors English	Honors English
	Path 3				English	English	English	English	English	English	English



Context

In math and ELA, MCPS offers a range of courses at each grade level, creating different pathways for students over time.



Explore

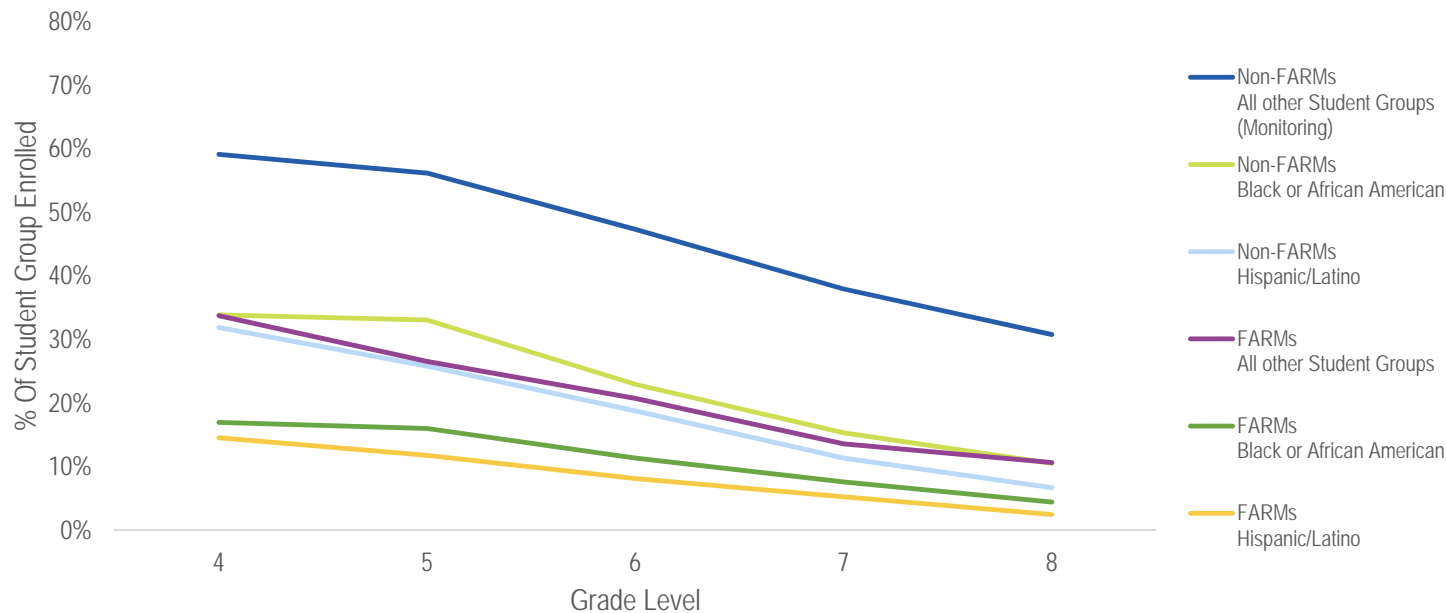
This is a simplified diagram that shows the **most common math and ELA pathways** in MCPS. For simplicity, we have labeled them Paths 1, 2, and 3. Path 1 represents the most advanced option, and Path 3 represents the least advanced option.

In this section, we will use the course pathways to answer two questions:

- (1) How does enrollment in each pathway differ across grade levels?
- (2) How does enrollment in each pathway differ across student groups?

Starting in elementary school and through middle school, *Focus* group students are less likely to be enrolled in the most advanced math course offerings, compared to *Monitoring* group students

Percent of Student Group Enrolled in Math Path 1 (most advanced pathway) by Grade



Context

Because the first point of pathway differentiation starts in 4th grade with compacted math, we used this as a starting point to see how enrollment rates in the most advanced math pathway compare by student groups and over time.



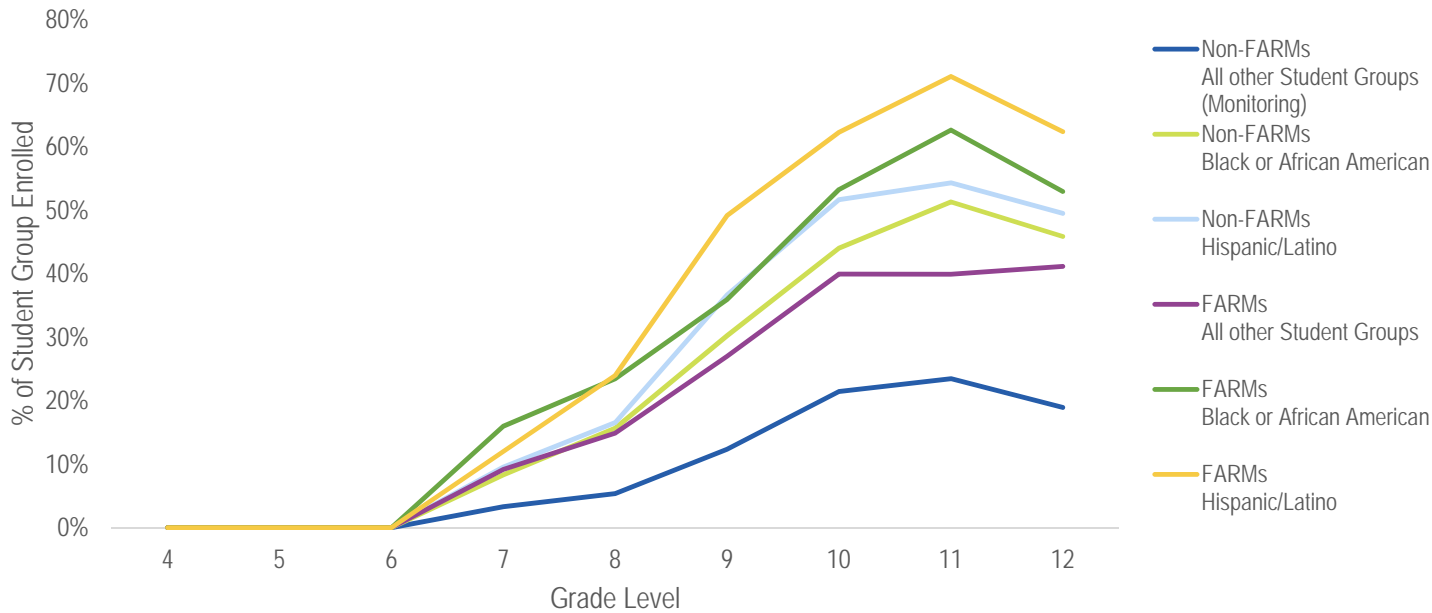
Explore

Each line represents the enrollment rate of a given student group in the **most advanced math pathway (Path 1)** over time, starting in 4th grade. This data shows two key trends:

- Enrollment in Path 1 **declines for all student groups** through 8th grade. This suggests:
 - If students are not selected for advanced math in 4th grade, it is difficult to *access* this pathway in later grades.
 - Among students who take advanced math in 4th grade, not all are able to *stay* in this advanced pathway over time.
- Across all grade levels, enrollment in Path 1 is significantly **lower for all Focus groups** compared to *Monitoring* group students.

Additionally, *Focus* group students are more likely to be enrolled in the lowest-level course starting in middle school and through high school

Percent of Student Group Enrolled in Math Path 3 (least advanced pathway) by Grade



Context

Starting in 7th grade, MCPS offers math courses in “Path 3,” the least advanced path. We looked at how enrollment rates in this pathway compare by student group and over time.



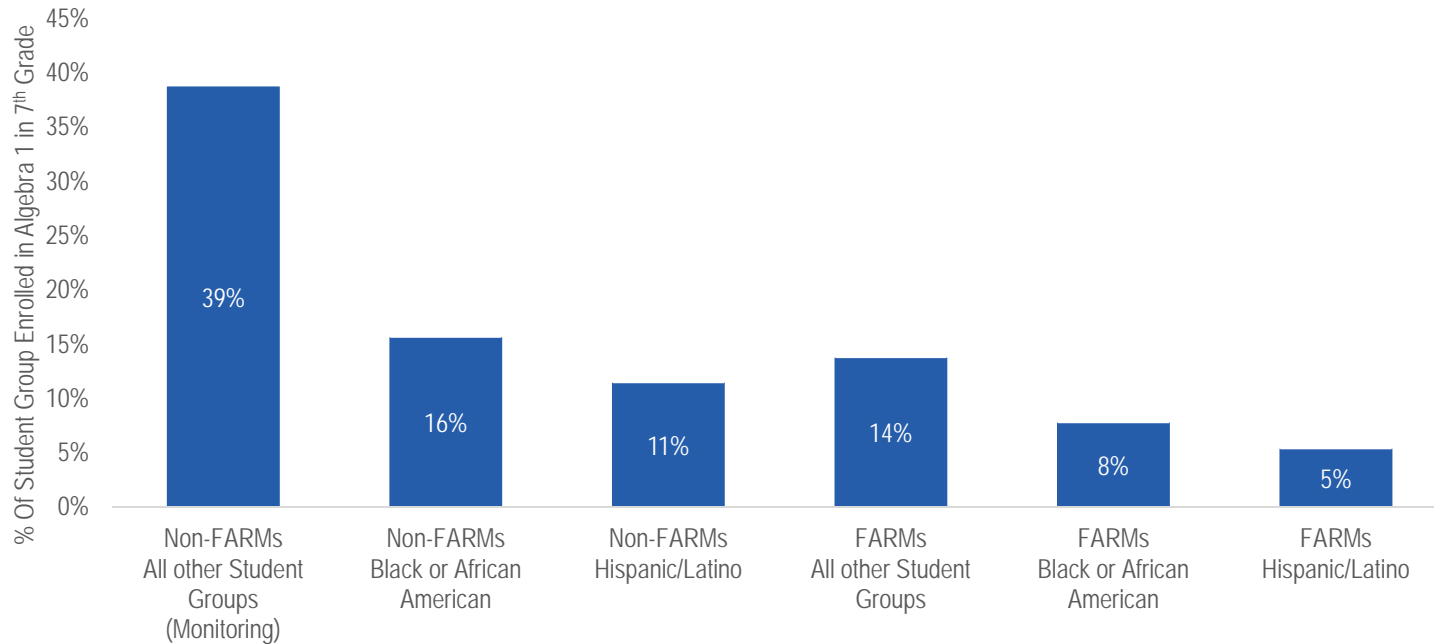
Explore

Each line represents the enrollment rate of a given student group in the **least advanced math pathway** through middle and high school. This data shows two key trends:

- 1) Between 7th and 12th grade, enrollment in Path 3 **increases for all student groups** by 4-6x. This suggests that students are not succeeding in Path 1 and 2, and end up in Path 3 over time.
- 2) Across all grade levels, enrollment in Path 3 is **higher for all *Focus* student groups** compared to *Monitoring* group students.

Deep Dive: Understanding course enrollment differences in 7th grade math

7th Grade Algebra 1 (Path 1 – most advanced path) Enrollment by Student Group



Context

To better understand why there might be differences in enrollment across student groups, we will look at a specific example: enrollment in Path 1 in math for 7th graders (i.e. enrollment in Algebra 1).

This data is the same as we saw in our line chart earlier – it shows us that *Focus* group students are **less likely** than *Monitoring* group students to be enrolled in the Path 1 advanced course in 7th grade.

Specifically, we see that in 7th grade, 39% of *Monitoring* group students take Algebra 1, compared to just 5% of Hispanic/Latino FARMs students. The *Focus* student group with the highest enrollment in Algebra 1 (16%) is still less than half as likely as *Monitoring* group students to be enrolled.

We will explore this **difference in enrollment rates** in the following slides.

What factors might drive this difference in student enrollment?

Context

There are three main factors that contribute to different enrollment rates in course pathways across student groups. Let's consider the example of Algebra 1 in 7th grade (the most advanced math pathway) to understand these factors.

Student Incoming Performance:

Students who are higher performing and have had prior exposure to advanced coursework will be more likely to meet the academic enrollment criteria for Algebra 1.

Course Assignment Within Schools:

For students who have similar levels of performance, there may be other factors in the course assignment process that impact access to the course. This includes, for example, which other types of student data are considered when assigning students to courses (e.g. attendance data, prior course grade).

Course Availability Across Schools:

If some schools offer more sections of Algebra 1 relative to the number of students who qualify, then students in those schools will have more opportunity to be enrolled, compared to similarly performing students in other schools that offer fewer sections.

We will continue using the example of Algebra 1 in 7th grade to assess the relative impact of these factors.

Student Incoming Performance

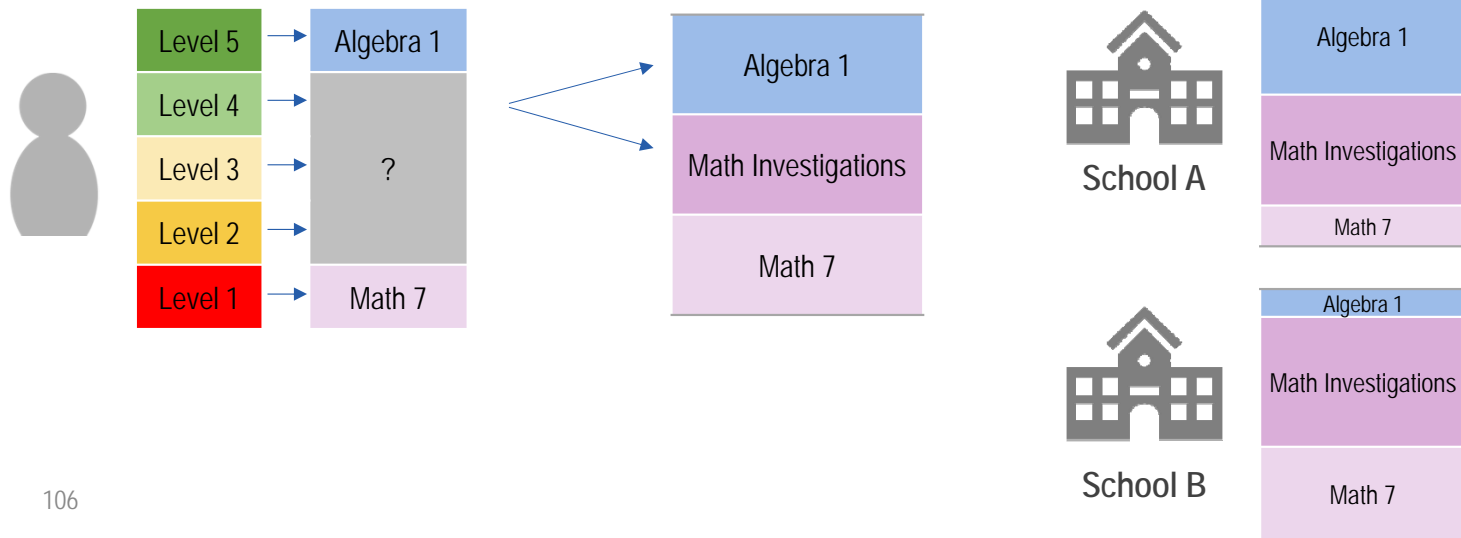
Incoming performance impacts which course you will likely be placed in

Course Assignment Within Schools

Even for kids with the same incoming performance, course placement might vary based on school course assignment practices

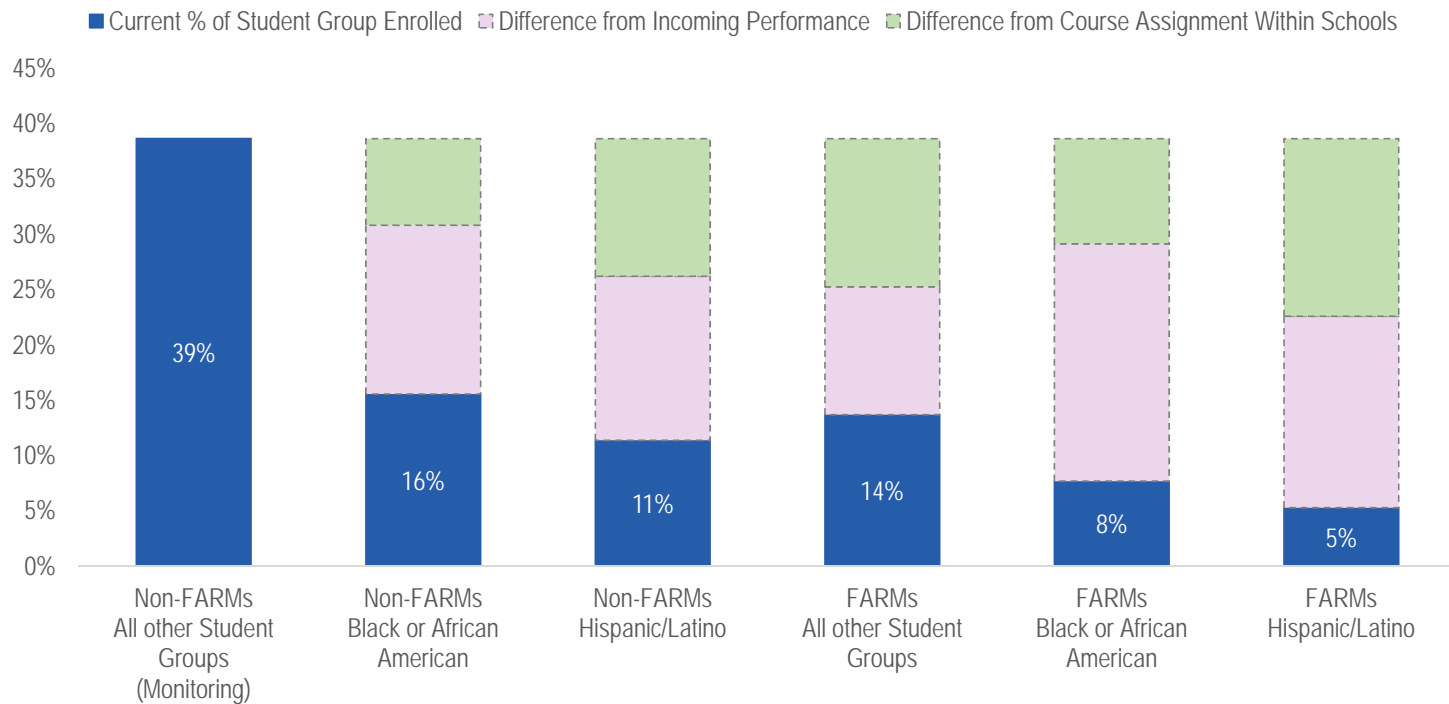
Course Availability Across Schools

Course availability at the school you attend can limit or enable your opportunities to take certain courses



Both incoming student performance *and* course assignment practices within schools contribute to differences in Algebra 1 enrollment between *Focus* group students and *Monitoring* group students

7th Grade Algebra 1 Enrollment Drivers by Student Group (All Middle Schools)



Explore

Our analysis shows that both incoming student performance (represented by the purple bars) and course assignment practices within schools (represented by the green bars) contribute to Algebra 1 enrollment differences between *Focus* group students and *Monitoring* group students. The next few slides explore these two factors more deeply.

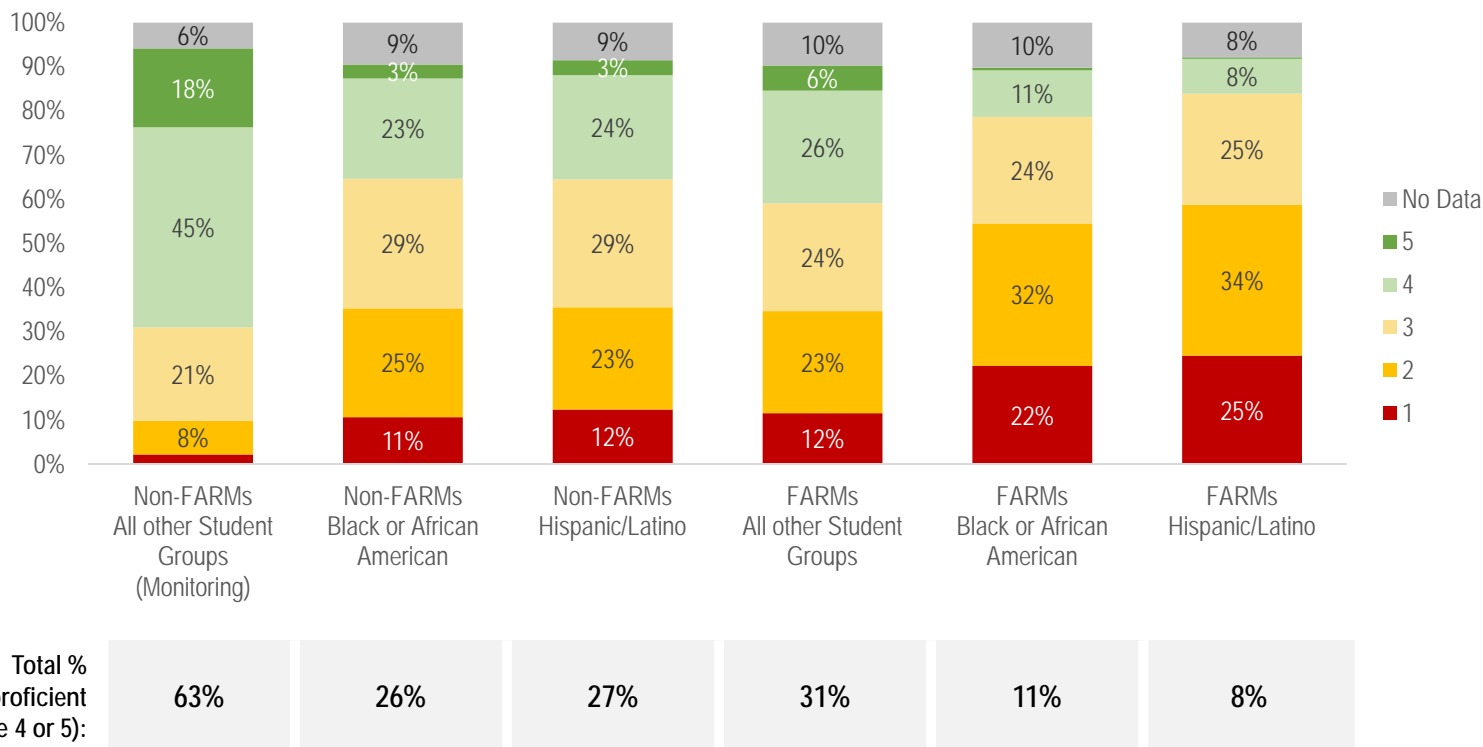
We also found that there was **no impact** from differences in **course availability** across schools. We found that all MCPS middle schools offered Algebra 1, and any variation in course availability across schools was not related to school need. This differs from other districts we have studied – we have often found that differences in course offerings across schools has contributed to differences in Algebra 1 enrollment. The MCPS project team recognized this difference from other districts as a **positive practice** in MCPS.

See the appendix for more details on our methodology for sizing the relative impact of each factor on Algebra 1 enrollment.

Incoming Student Performance:

Monitoring group students enter 7th grade with higher incoming performance scores than *Focus* group students

7th Grade Incoming Math Performance Scores (6th grade PARCC Scores) by Student Group



Explore

The first factor we will look at is **incoming student performance**. This chart shows the distribution of student performance on the prior year (6th grade) PARCC math assessment, by student group. For example, we see that 18% of *Monitoring* group students scored a 5 on this exam, while 25% of Hispanic/Latino FARMs students scored a 1.

Overall, this data shows that a **greater percentage** of *Monitoring* group students enter 7th grade proficient in math compared to *Focus* group students (proficient = scoring a 4 or 5 on PARCC). This suggests that part of the reason *Focus* group students have lower enrollment in Algebra 1 is because they have lower incoming performance than *Monitoring* group students, and are not academically prepared for the advanced course.

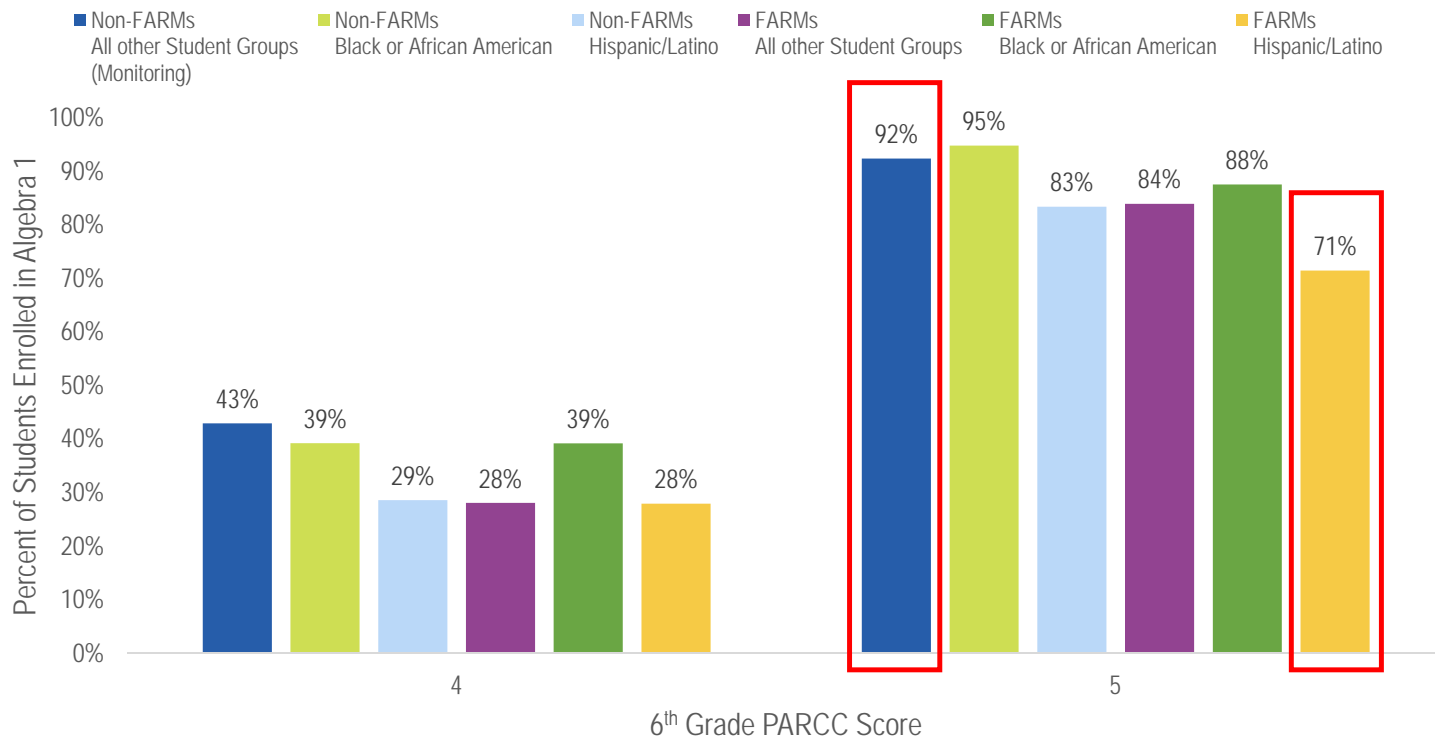


Consider

This data raised important questions around why students enter 7th grade with lower levels of performance and how to make sure that students receive necessary supports in earlier grade levels to be successful.

Course Assignment Within Schools: Some *Focus* group students are less likely to be enrolled in Algebra 1 than *Monitoring* group students with the same incoming performance

7th Grade Algebra 1 Enrollment Rate by Incoming Performance Score



Context

In addition to understanding the impact of incoming performance on enrollment in Algebra 1, we assessed whether differences in enrollment still exist *after controlling* for incoming performance.



Explore

This chart shows enrollment rates in Algebra 1 across student groups with the same incoming performance level. For example, 92% of *Monitoring* group students who scored a 5 on the PARCC Math 6 assessment take Algebra 1 in 7th grade, compared to 71% of Hispanic/Latino FARMs students who scored a 5. This data shows that even after accounting for incoming performance, there are **still differences in enrollment rates across student groups**.

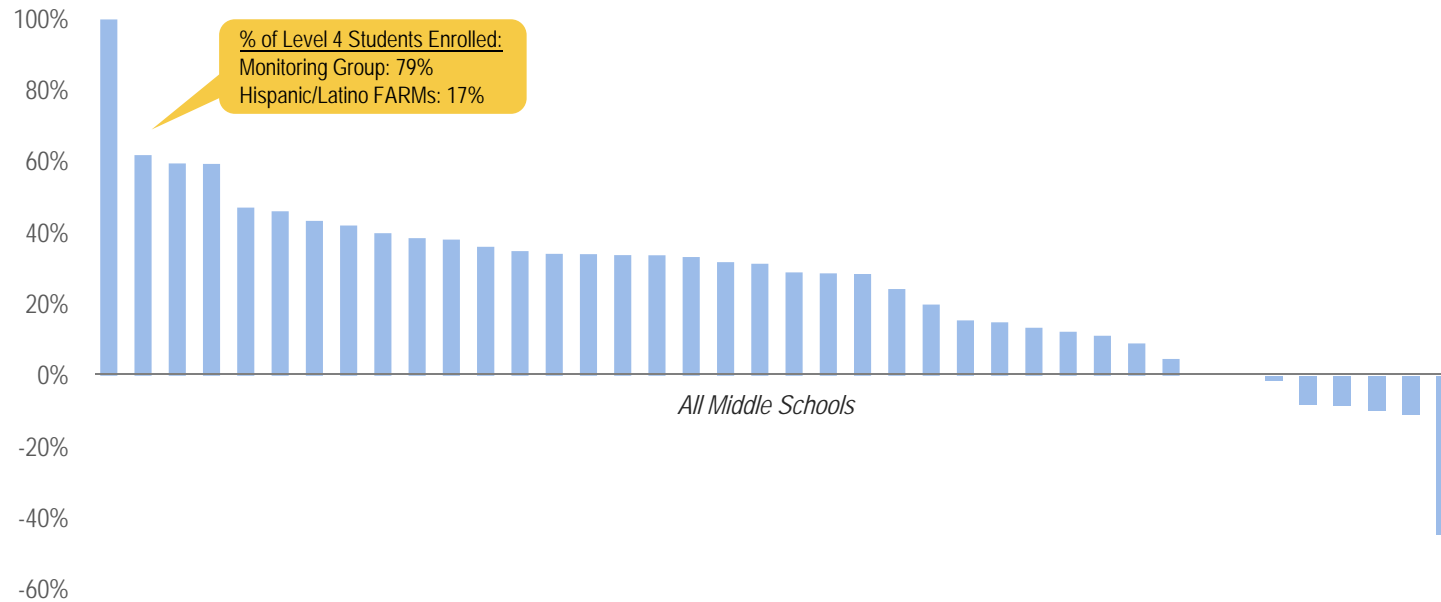


Consider

While recognizing that many factors can impact course assignment, the MCPS project team identified this as an **opportunity to improve equity**, so that enrollment in advanced coursework for students of the same incoming performance level do not vary by student group.

Course Assignment Within Schools: Enrollment differences for students with the same incoming performance exist across most middle schools, but vary in size and direction

Among Students With Incoming Performance Scores of 4, Difference between Monitoring Group and Hispanic FARMs Enrollment in Algebra 1



Context

The previous analysis showed the enrollment difference for students of the same incoming performance across the entire district. Here, we will see how the size of this difference varies across schools.



Explore

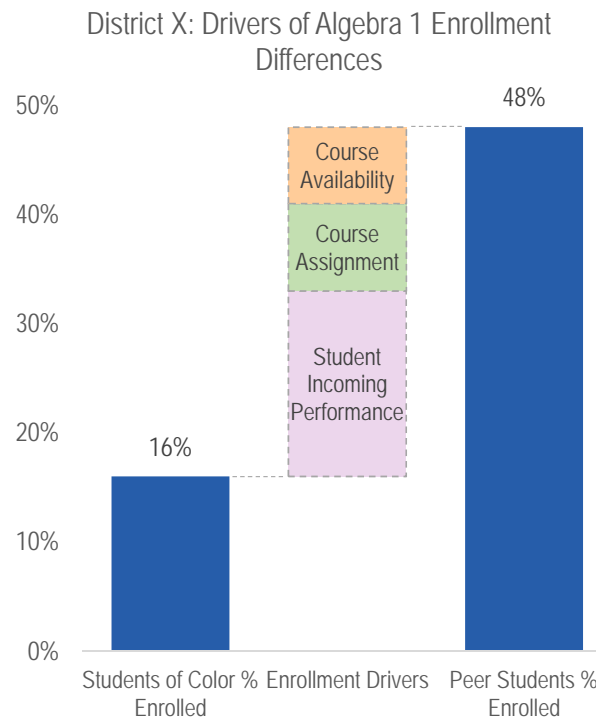
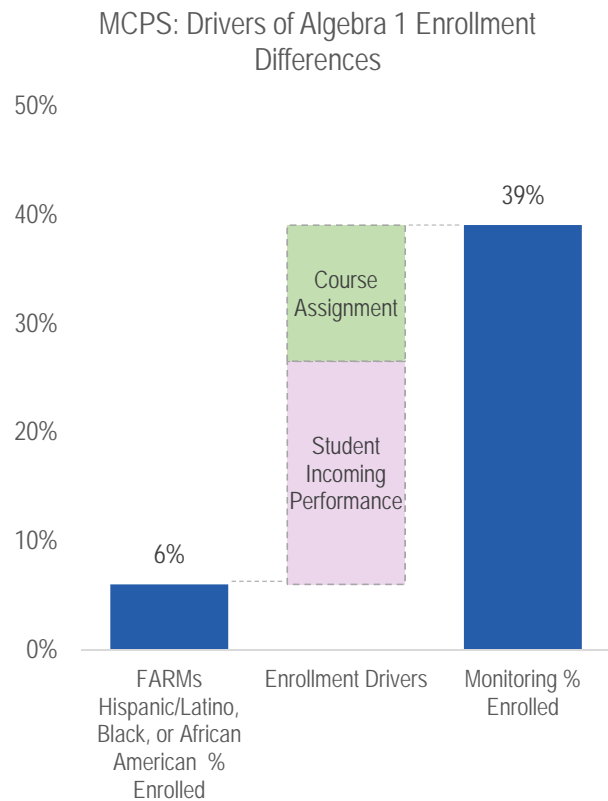
This chart shows the **difference in Algebra 1 enrollment** between *Monitoring* group and Hispanic FARMs students in each middle school. To ensure a consistent comparison across schools, we only looked at students entering 7th grade with an incoming performance score of 4. In the yellow callout example, 79% of *Monitoring* group students who are level 4 are enrolled in Algebra 1, compared to 17% of Hispanic/Latino FARMs students who are also level 4. This results in a difference of 62%, which is reflected in the bar chart. Most schools show a positive difference, which means that *Monitoring* students have **higher enrollment** than Hispanic/Latino FARMs students of the **same incoming performance**.



Consider

The MCPS project team discussed factors that might contribute to this result, such as the use of other kinds of student data in course assignment (course grades, attendance, or behavioral data), teacher recommendations, and the timing of PARCC data (mid-summer). This raised a question of how to ensure that these practices do not disproportionately impact access to advanced coursework for certain students.

Course Availability Across Schools: Unlike peer districts, course availability across MCPS schools is not a driver of differences in Algebra 1 enrollment between student groups



Source: MCPS 17-18 Course Schedule, ERS analysis, ERS comparison district database.

Context

The last factor that can impact enrollment in advanced coursework is **differences in the availability of advanced courses across schools**. For example, if certain schools offer fewer sections of Algebra 1 compared to the number of eligible students, then all students in that school would be impacted.

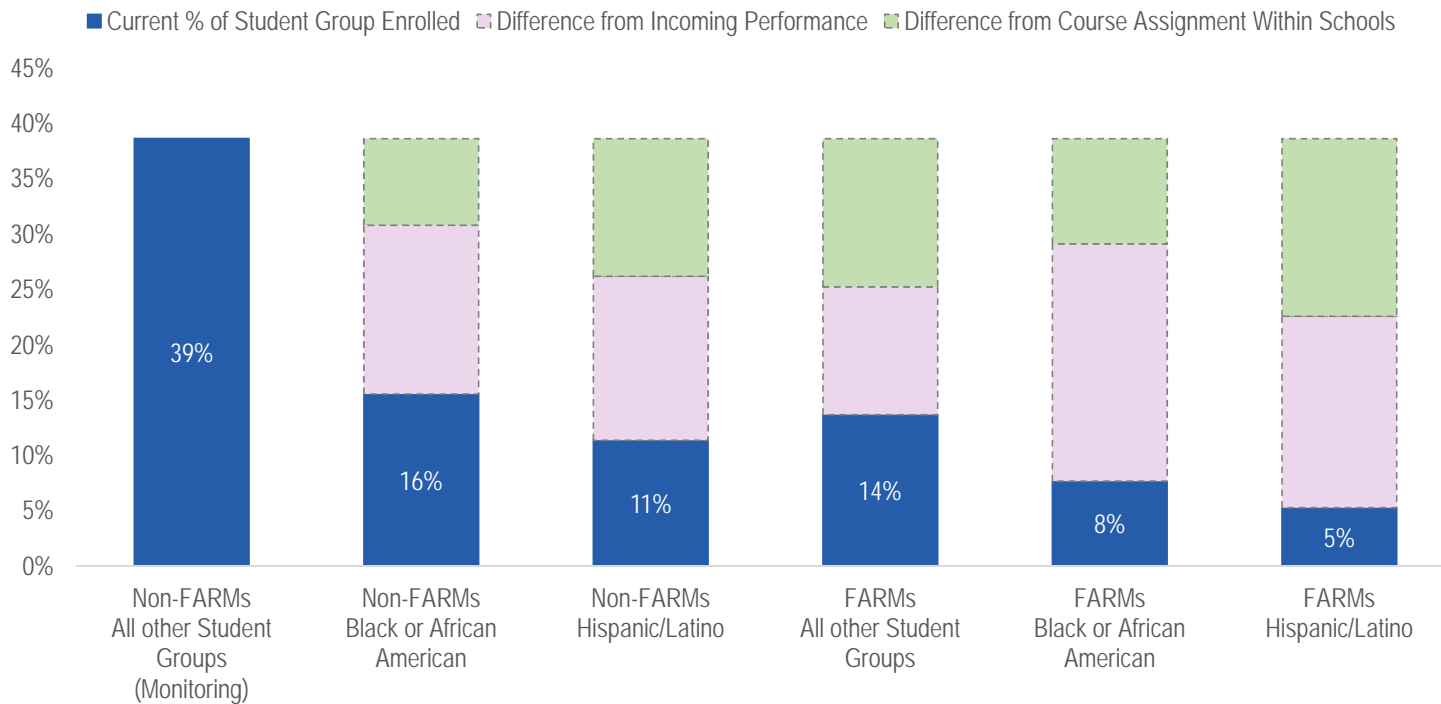
Explore

In ERS' work with other large, heterogeneous school systems, we have seen that course availability across schools can play a significant role in the student experience. In the comparison district shown here, higher-need schools offer fewer sections of Algebra 1, so students in those schools are less likely to be enrolled. Students of color are disproportionately impacted because they are more concentrated in those schools. In this district, differences in course availability across schools account for a quarter of the total enrollment difference.

In MCPS, we did *not* observe differences in course availability across schools that systematically impacted *Focus* group students. Based on this data, the MCPS project team concluded that increasing course availability was likely a less impactful opportunity for action than addressing incoming performance and course assignment factors.

Both incoming student performance *and* course assignment practices within schools contribute to differences in Algebra 1 enrollment between *Focus* group students and *Monitoring* group students

7th Grade Algebra 1 Enrollment Drivers by Student Group (All Middle Schools)



Explore

As we saw earlier, incoming student performance and course assignment practices both contribute to Algebra 1 enrollment differences between *Focus* group students and *Monitoring* group students.

Note: In this report, we focused on enrollment in Algebra 1 as an example. When we looked at enrollment in other advanced courses across different grade levels and subjects, we saw **similar trends** regarding drivers of enrollment differences between student groups. Other grades/subjects explored include: 4th grade compacted math, 11th grade AP English, and standard English courses in middle and high schools/



Consider

This analysis reinforces the importance of ensuring that students have **sufficient support in earlier grade levels** to raise incoming performance for all students long-term. This data also raised questions about which changes could be made to current student course assignment practices or course pathways to ensure all student groups have equitable enrollment to advanced coursework, given similar performance levels.

We also see differences in Algebra 1 success rates across Paths 1, 2, and 3

Grade:		7	8	9	Passed Course	Passed Course and PARCC Graduation Criteria (Received 3, 4, or 5)
Math Pathways	Path 1	Algebra 1			99%	96%
	Path 2		Algebra 1		93%	71%
	Path 3			Algebra 1	68%	33%



Context

Looking at access to advanced coursework sheds light on important equity opportunities – however, the goal for instructional excellence is that all students experience rigorous, grade-level curriculum and instruction in every classroom, no matter the pathway, *and* that at every level students have the supports they need to successfully master content.



Explore

To explore this, we looked at success rates in Algebra 1 across course pathways to see if students who take the course at **different points in time** have a **different likelihood of success**. This table compares course pass rates and PARCC pass rates for each Algebra 1 cohort. We see that success rates on both metrics decrease significantly for students who take the course later, particularly for students who take it as 9th graders. We also see that for every cohort, PARCC pass rates are lower than course pass rates.



Consider

This data raised questions around if MCPS could best measure and assess whether rigorous, grade-level instruction is currently happening in every classroom no matter the pathway, and whether there are opportunities to increase the consistency of rigor across classrooms so that all students are held to the same high expectations for mastering content.



Rigorous, Empowering Curriculum: Key Questions

- Why might we see enrollment decrease in the most advanced pathway over elementary and middle school? What actions can we take to support student success in their coursework?
- Given that the biggest factor contributing to differences in Algebra 1 enrollment across student groups is incoming performance, what actions can we take to support student success in their coursework?
- Given that the second biggest factor in differences in Algebra 1 enrollment is course assignment within schools:
 - Why might we see differences in enrollment in advanced coursework across student groups with the same incoming performance?
 - What actions can we take to ensure we have the right criteria for accessing advanced coursework, and that all students who meet those criteria get access?
- How can we ensure that rigorous grade-level instruction happens in every classroom, no matter the pathway? How can we measure if and how this is currently happening?

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

In MCPS, higher-need schools/students get **more**

In MCPS, higher-need schools/students get a **similar level**

In MCPS, higher-need schools/students get **less**

You are here



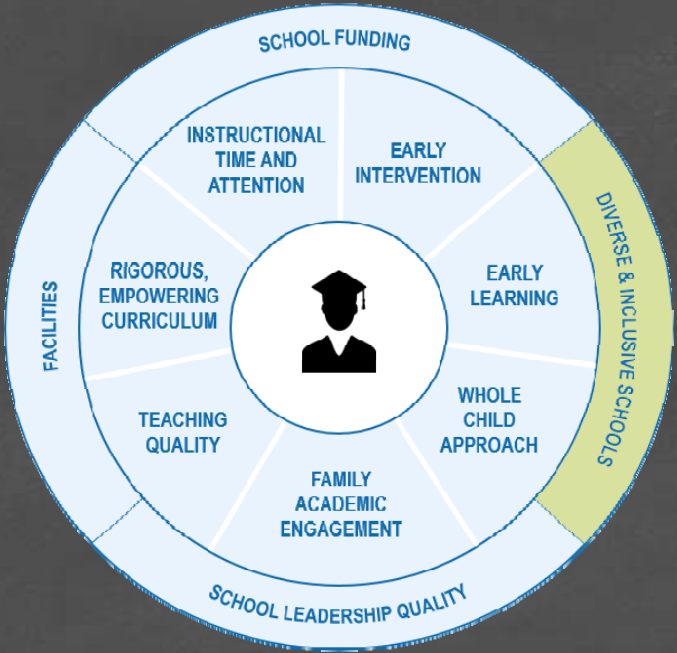
Performance
School Funding
Teaching Quality
Instructional Time and Attention
Rigorous, Empowering Curriculum
Diverse and Inclusive Schools and Classrooms
Whole Child Approach
School Leadership Quality

Dimensions of resource equity



Dimensions of Resource Equity

Diverse and Inclusive Schools and Classrooms





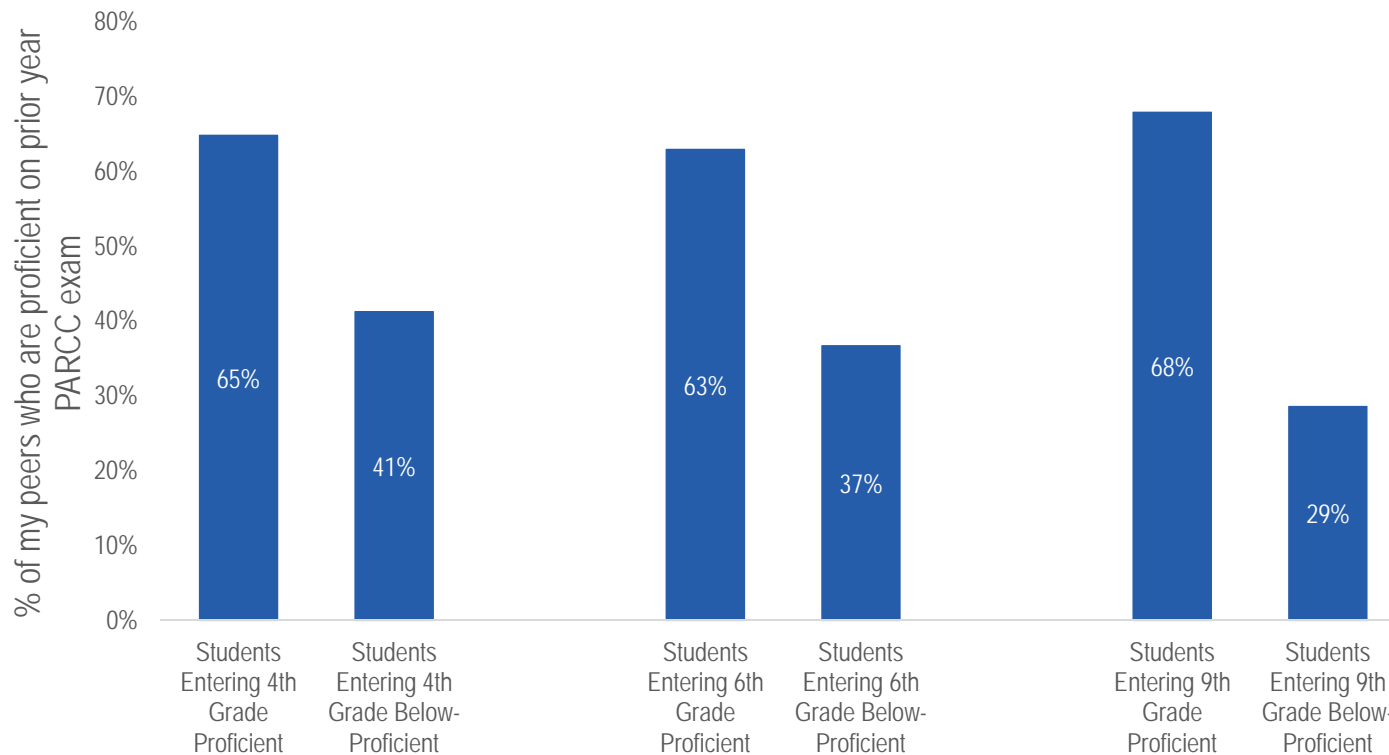
Diverse and Inclusive Schools and Classrooms: At a Glance

Vision: All students attend schools and classes that are racially and socioeconomically diverse, and inclusive of English learners and students with disabilities

<p>Why it Matters</p>	<p>School diversity has been shown to benefit all students, for reasons that are not clearly identified in research:</p> <ul style="list-style-type: none"> • <i>Impact for historically underserved students:</i> Low-income students who attend economically mixed schools have higher achievement than those who attend schools with high concentrations of poverty. • <i>Impact for all students:</i> All students benefit in the form of increased creativity, motivation, deeper learning, critical thinking, and problem-solving skills.
<p>How it's Assessed</p> <p><i>*Indicates topics addressed in our study</i></p>	<p>Composition of schools and classrooms by:</p> <ul style="list-style-type: none"> • Race • Socioeconomic status • Performance levels* • Other student characteristics (gender, EL status, special education status, etc.)
<p>Study Insights</p>	<ul style="list-style-type: none"> • Compared to higher-performing students, lower-performing students attend classes with a lower concentration of proficient peers. In middle school and high school, this is mostly driven by <i>within</i> school classroom assignment differences (vs. differences in student performance across schools).

Students who enter fourth, sixth, and ninth grades with lower incoming performance scores are in classes with fewer proficient peers

Percent of peers proficient on prior year ELA PARCC exam



Source: MCPS 17-18 Course Schedule, ERS analysis.
Proficiency is a score of 4 or 5 on PARCC ELA exam;

Percent of proficient peers calculated based on homeroom (for elementary schools) and core classes (for middle and high school)



Context

Although students are sometimes grouped by skill to facilitate targeted instruction, students also benefit from having access to a **diverse learning environment** with peers from a range of incoming performance levels.

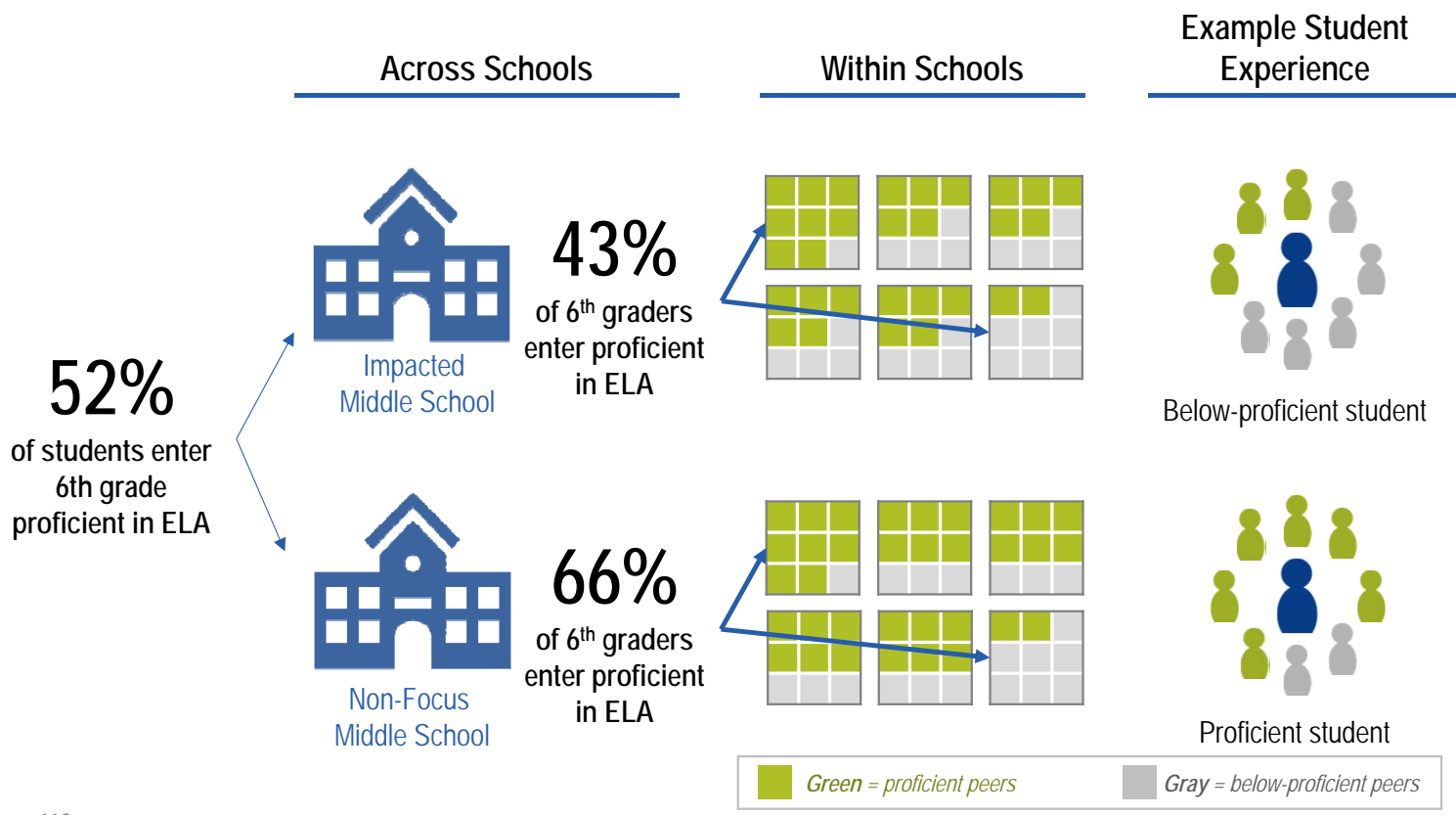


Explore

We looked at 4th, 6th and 9th graders by their incoming performance scores (based on 3rd, 5th and 8th grade PARCC ELA exams) and compared the average percent of students in their homeroom (for elementary school) or core classes (for middle and high school) who enter the class proficient in ELA (scoring a 4 or 5 on the prior year exam).

We see that students who enter 4th grade proficient are in classes where 65% of their **peers are also proficient**. Students who are not proficient when entering 4th grade are in classes where only 41% of their peers are proficient. **This difference increases** in middle and high school.

What factors might drive this difference in student experience?



Context

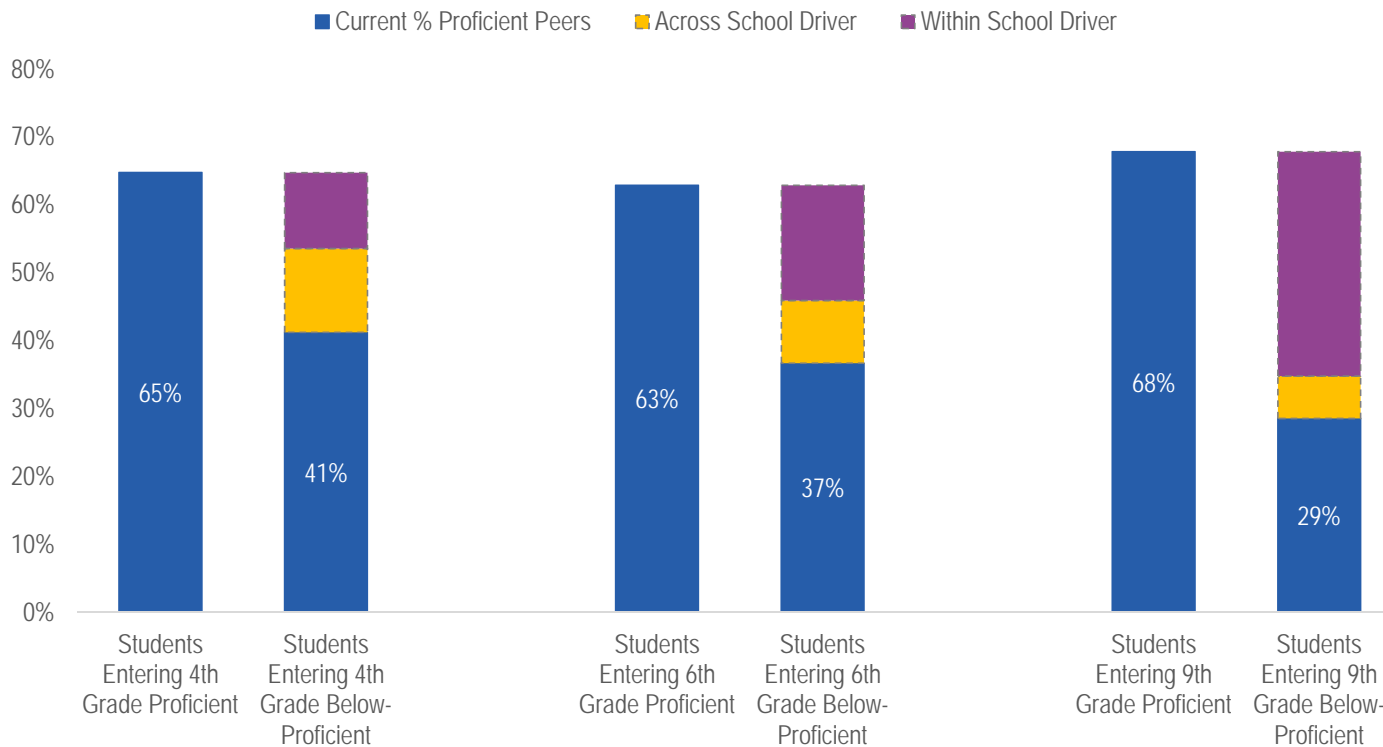
There are two reasons why proficient and below-proficient students would have different peer experiences.

- **Across schools**, we know that impacted schools have a greater concentration of below-proficient students compared to non-Focus schools. Therefore, a student in an impacted school has a greater likelihood of being in classes with below-proficient peers.
- **Within schools**, classrooms may differ in the percent of proficient students in each class. This can be due to a number of factors, including level of course (e.g. honors, AP, etc.) or student assignments to specific periods based on overall class schedule.

Source: MCPS 17-18 Course Schedule, ERS analysis. See glossary for definition of school-need designations

Within-school student assignment drives most of the difference in the percent of proficient peers that students experience, particularly in high school

Percent of peers proficient on prior year ELA PARCC exam



Context

We can size the relative impact of across- and within-school factors to understand what drives differences in student experience. How much of the difference is because below-proficient students are concentrated in certain schools, and how much of the difference is because below-proficient students are concentrated in certain classes within a school?



Explore

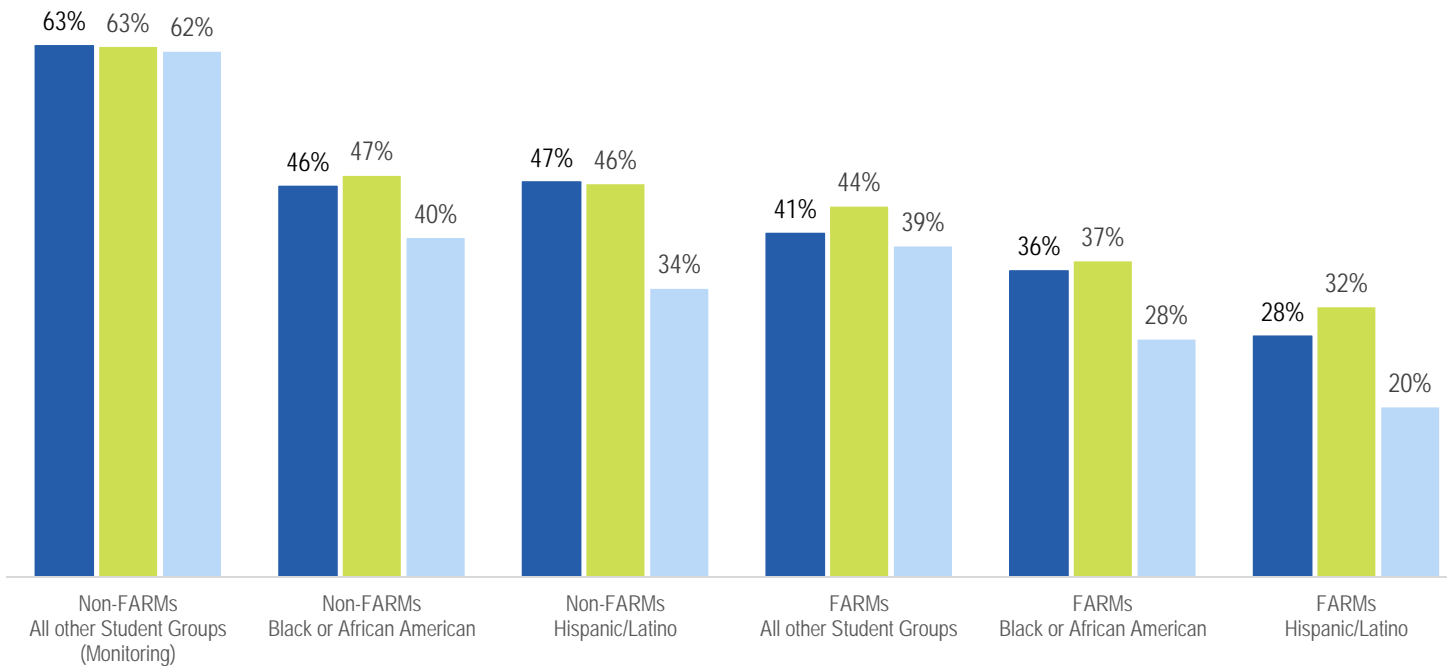
We see that in both middle and high school, **within school factors** (purple bar) account for the majority of the overall difference in student experience across the district. This is especially noticeable in high school, where the overall difference in student experience is also larger. In elementary school, both within and across school factors account for the differences in student experience.

See appendix for details on methodology for sizing across school and within school drivers.

Focus group students attend classes with fewer proficient peers than Monitoring group students

Percent of peers proficient on prior year ELA PARCC exam

■ ES (4th grade) ■ MS (6th grade) ■ HS (9th grade)



Source: MCPS 17-18 Course Schedule, ERS analysis. Proficiency is a score of 4 or 5 on PARCC ELA exam;

Percent of proficient peers calculated based on homeroom (for elementary schools) and core classes (for middle and high school)



Context

So far, we explored student experience of peer proficiency from the perspective of proficient and below-proficient students. We can also compare to see if there are differences across the student groups outlined in MCPS' Equity Accountability Model.



Explore

We see here that across elementary, middle and high schools, Focus group students are in classes with a lower percentage of proficient peers than Monitoring group students. We also see that for all Focus groups, the percent of proficient peers decreases from middle school to high school. This suggests that courses get more segregated by proficiency as students move through their school career.



Consider

This data raised two big questions:

- (1) How can we ensure that each student gets the support and opportunities they need to succeed and excel, while also giving them access to heterogenous learning environments?
- (2) What actions can we take early on in a student's school experience so that we raise performance for all kids over time, and give all students the opportunity to excel?

How does this experience play out *across* dimensions of resource equity?

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

In MCPS, higher-need schools/students get **more**

In MCPS, higher-need schools/students get a **similar level**

In MCPS, higher-need schools/students get **less**

Performance
School Funding
Teaching Quality
Instructional Time and Attention
Rigorous, Empowering Curriculum
Diverse and Inclusive Schools and Classrooms
Whole Child Approach
School Leadership Quality

Dimensions of resource equity



Consider

As we shared earlier, when we think about the dimensions of equity, it is important that we think about all of them together. If we look at them in isolation, we risk missing an important link across them. For example, we can create heterogenous classrooms, but if students aren't academically prepared or don't have the support they need to succeed in that class, then that won't lead to better outcomes for students.

When reflecting on the data on student experienced peer proficiency, it seemed particularly important to **consider this data in the context of the other equity dimensions**. It is one thing to see that students tend to be in classes with kids who have similar levels of performance. But if kids who are behind are not only in segregated classes, but (A) are also more likely to be in classes with novice teachers, (B) are in schools with novice leaders, and (C) don't get significantly smaller class sizes, or more time in core subjects – how can we expect them to catch up?



Diverse and Inclusive Schools and Classrooms: Key Questions

- What actions can we take early in a student's career to raise performance for all, and ensure that all students have the opportunities they need to excel?
- What actions can we take to ensure student class assignments, interventions and targeted supports are organized in ways that best meet student needs, while also maximizing opportunities for heterogenous settings?

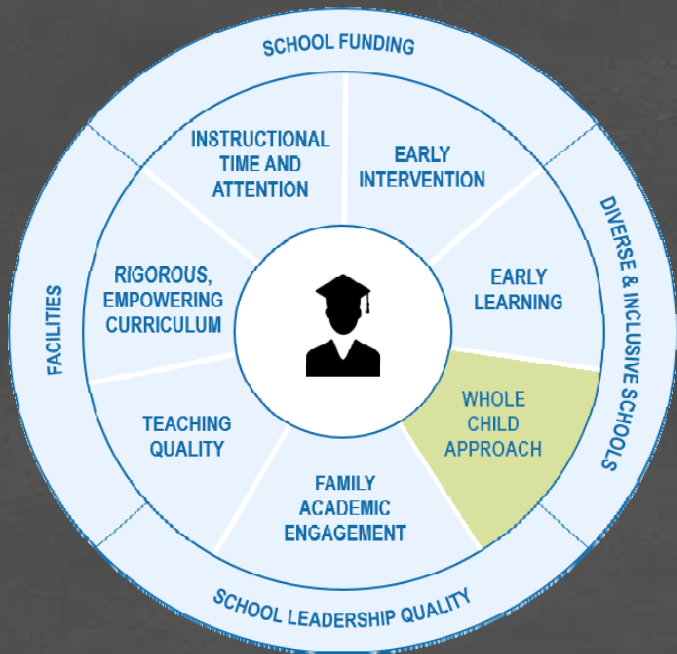
Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

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Performance	
School Funding	
Teaching Quality	
Instructional Time and Attention	
Rigorous, Empowering Curriculum	
Diverse and Inclusive Schools and Classrooms	
Whole Child Approach	
School Leadership Quality	

Dimensions of resource equity

You are here



Dimensions of Resource Equity

Whole Child Approach

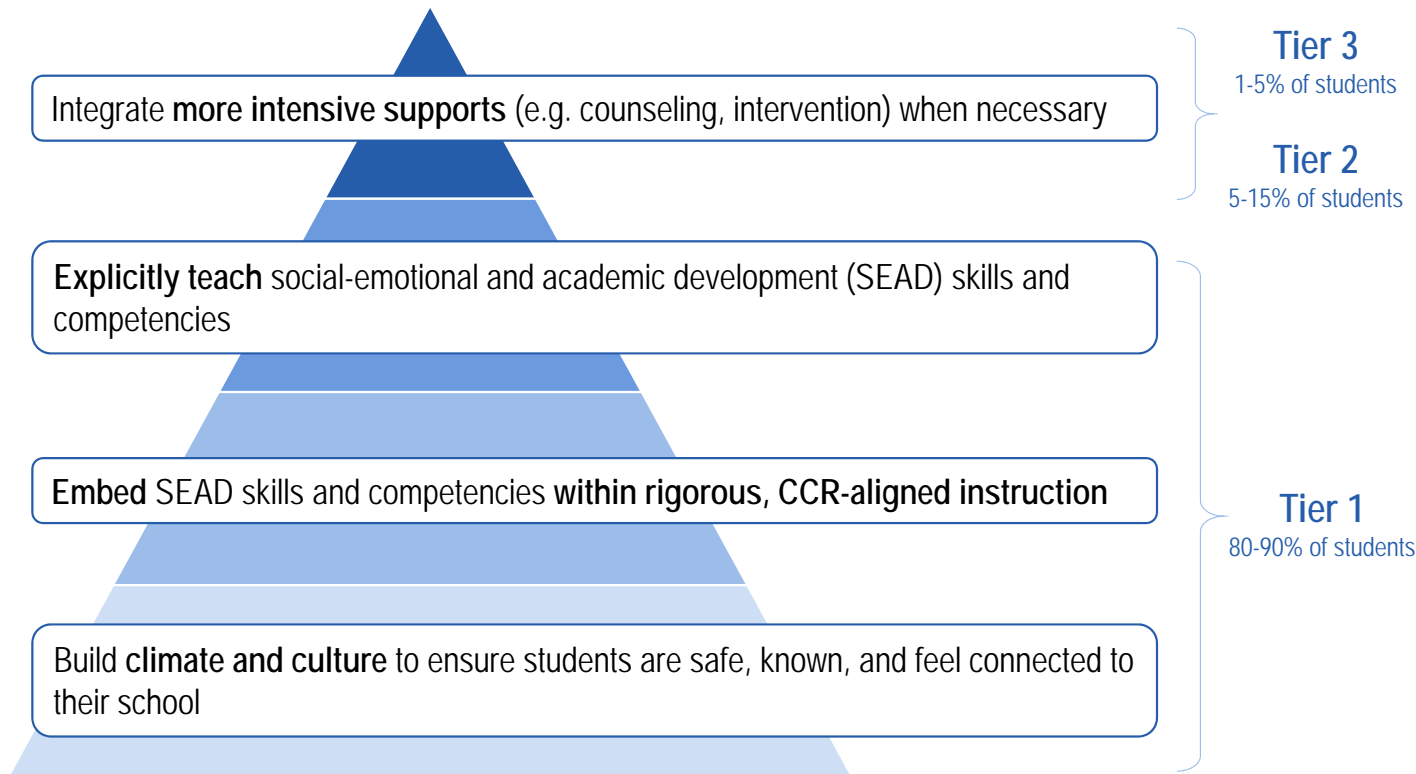


Whole Child Approach: At a Glance

Vision: All students feel engaged, respected, and like they belong in school. All students have the academic, physical and mental supports, and college and career guidance they need to succeed in school and life.

Why it Matters	<p>A strong school climate that makes all students feel respected and like they belong in their school is essential for student learning to take place.</p>
How it's Assessed <i>*Indicates topics addressed in our study</i>	<ul style="list-style-type: none"> • Access to different whole child practices* • Effectiveness of different whole child practices
Study Insights	<ul style="list-style-type: none"> • Based on the principal survey, we don't see consistent use of 'Tier 1' practices (i.e. practices that build culture, climate, and social-emotional competencies for all students in a school) • Compared to peer districts, MCPS has more guidance counselor positions per 500 students, and similar levels of social workers and psychologists • At the same time, most principals say they need more resources to meet students' social-emotional needs

Schools with effective whole child approaches tend to emphasize four components



Context

A whole child approach should be integrated into a holistic school strategy and have components that take place both in and out of the classroom.

It can be helpful to think of whole child as a tiered approach:

Tier 1 (80-90% of students)

All students should experience safety and belonging in a positive school climate and culture. Social-emotional competencies should be embedded and explicitly taught in classroom instruction and throughout the school day.

Tier 2/3 (10-20% of students)

Some students will have more acute social-emotional needs that require more intensive supports such as counseling, therapy, or other kinds of individualized attention from social workers or counselors.

Based on the principal survey, we don't see consistent use of Tier 1 practices that support social-emotional learning across schools and for all students in MCPS

Tier	Practice	% Freq/Always
Tiers 2 and 3: Targeted Interventions Integrate more intensive supports when necessary	Counseling teams and teachers collaborate regularly about shared students	88%
	My school has a process for identifying social-emotional needs of students	91%
Tier 1: Classroom-Based Practices Embed social-emotional and academic development skills (SEAD) and competencies within rigorous, CCR-aligned instruction Explicitly teach SEAD skills and competencies	Teachers participate in professional learning to improve their ability to teach SEL	78%
	Teachers consistently integrate SEL competencies into regular instruction	73%
	Teacher loads <90 for ELA and Math in transition grades	47%
	Smaller groups of students that take the same classes as each other ¹	22%
	Class sizes in core subjects below 17	16%
	Looping students and teachers for 2 or more years ²	4%
Tier 1: School-Based Practices Build climate and culture to ensure students are safe, known, and feel connected to their school	Morning meeting	57%
	Advisory groups of <15 students that meet for 20+ minutes/week	16%
	Student-driven clubs & electives	41%

Source: MCPS SY17-18 Principal Survey

1. These groups may be called "teams", "cohorts", "houses", or "families"; 2. Looping involves re-assigning students to the same teacher over multiple years and grades. Typical examples include a Grade 1 teacher "looping" with his/her/their students, meaning the teacher goes on to teach Grade 2 with the same set of students that were enrolled in his/her/their Grade 1 class.



Explore

We used the principal survey to understand how frequently different practices for social-emotional learning are used in schools. Principals were asked to rate if their schools *frequently* or *always* used each practice listed on the left. Survey responses show that the **majority of principals** report using Tier 2 or 3 interventions, but the use of the Tier 1 practices is **less consistent**.

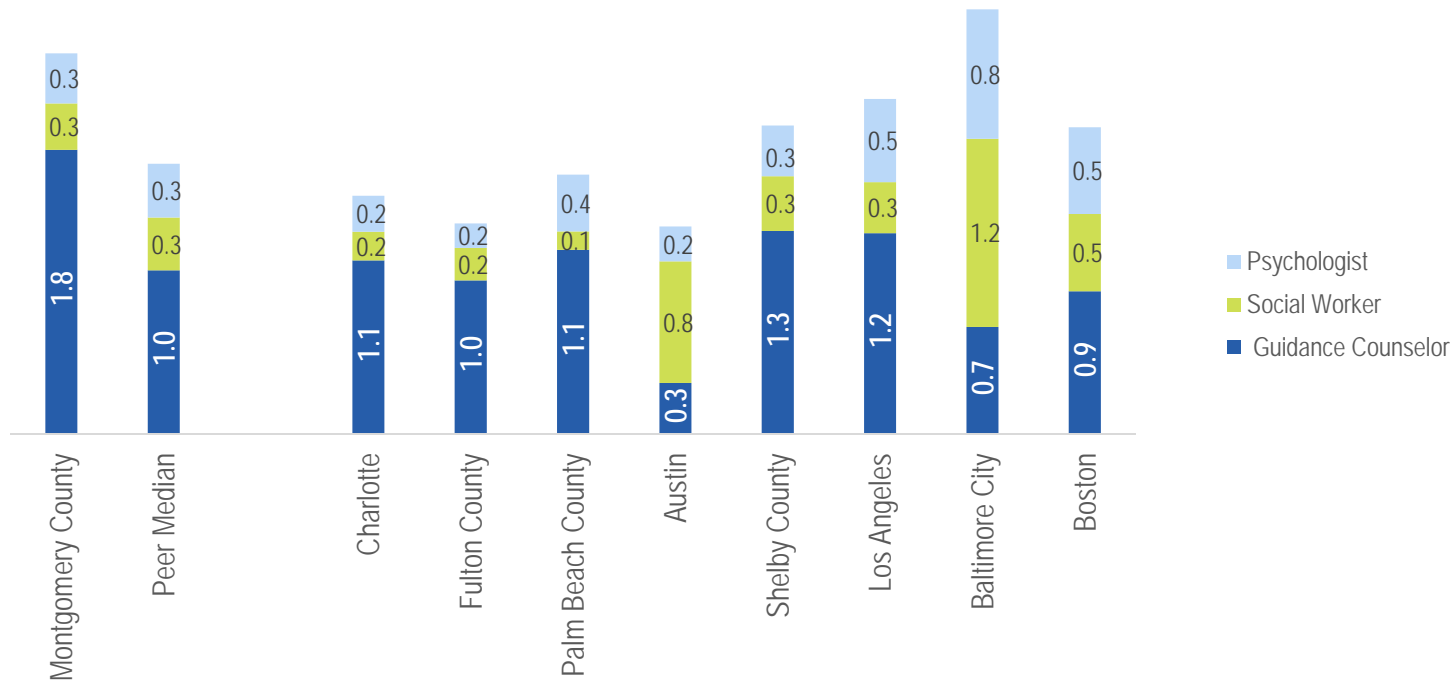


Consider

This data raised questions about how to increase the use of Tier 1 practices that are more embedded in classrooms. The MCPS team also reflected that having more comprehensive data about the use of whole child practices would help build a more complete picture of needs and opportunities in the district. Finally, the team discussed the importance of **collecting input and perspective** from teachers, families, and students themselves to inform priorities and next steps.

Compared to peer districts, MCPS has more guidance counselors per 500 students, and similar levels of social workers and psychologists

FTE per 500 Students: Select Positions



Context

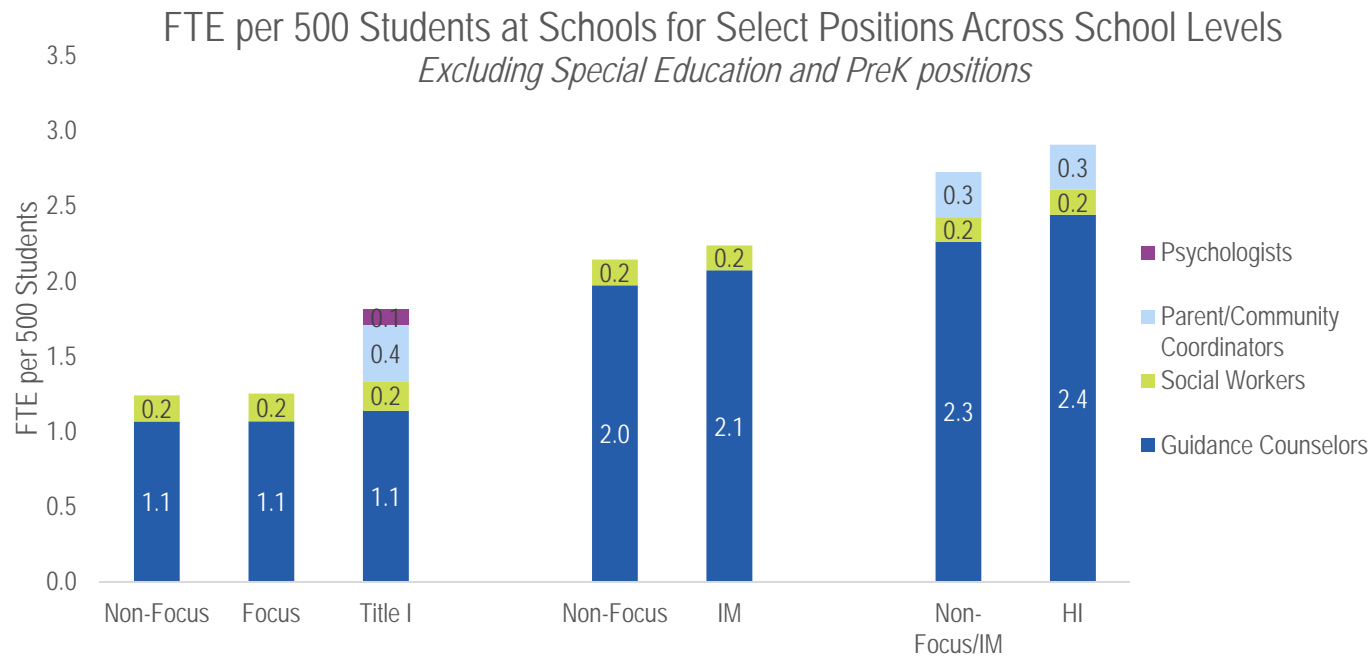
In addition to looking at whole child practices currently used across schools, we also explored MCPS' investment in staffing positions whose core responsibility is supporting students' social-emotional well-being – specifically, guidance counselors, social workers and psychologists. (Note: we recognize that all school staff play an important role in supporting their students in this area; for this analysis, we wanted to focus on the subset of staff with core functions in this area.)



Explore

This table shows the FTE per 500 students by position in MCPS compared to peer districts. We see that compared to peer districts, MCPS has more guidance counselor FTE per 500 students (1.8 vs. 1.0), and similar levels of social worker and psychologist FTE per 500 students (0.3 and 0.3 respectively).

There is some differentiation across school need levels in positions related to social-emotional support for students



% Difference in FTE from non-focus schools	Non-Focus	Focus	Title I	Non-Focus	IM	Non-Focus/IM	HI
	-	1%	46%	-	4%	-	7%



Context

In addition to comparing staffing levels for positions between MCPS and peer districts, we can also look to see how staffing compares within MCPS by school need level.



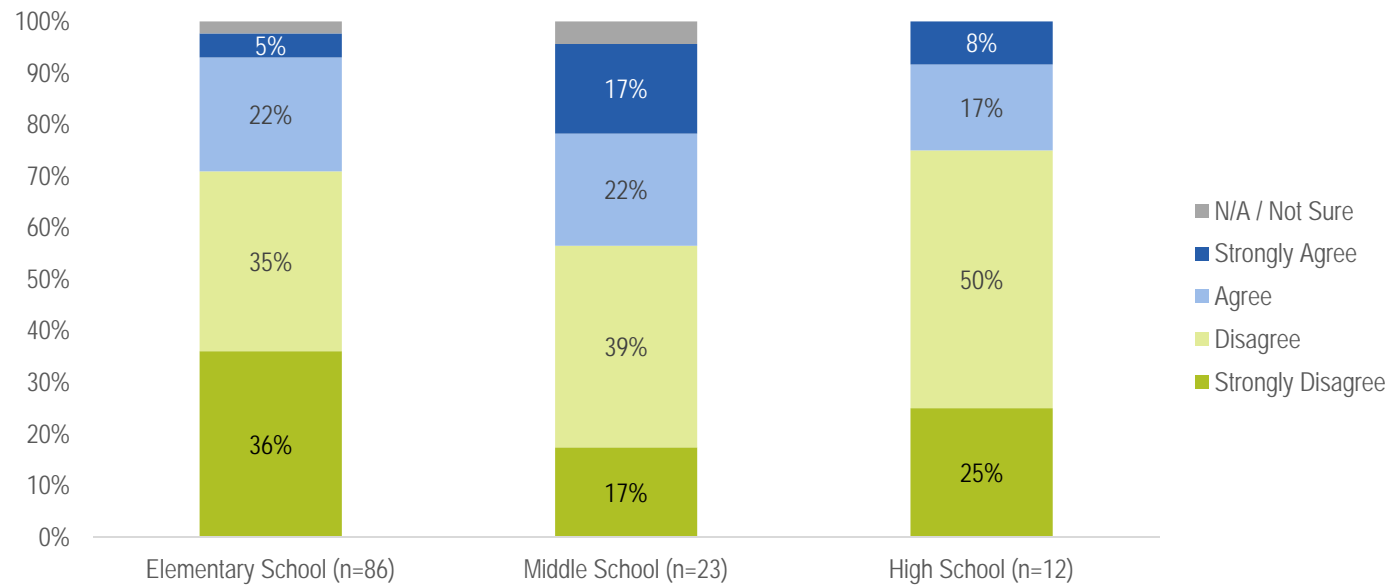
Explore

This chart shows the total FTE/500 students by position (guidance counselor, social workers, psychologists and parent/community coordinators) across school level and school need designation. This data shows two things:

- (1) Compared to other elementary schools, Title I elementary schools receive additional positions in the form of parent/community coordinators and psychologists to support their students' social emotional learning needs
- (2) All other high need schools (focus elementary, impacted middle, and highly impacted high schools), had slightly more FTE per 500 in these positions compared to their low-need counterparts – ranging from 1% to 7% more FTE per 500 students.

At the same time, most principals say they need more resources to meet students' social-emotional needs

% Principals Responding to the Statement:
 "Overall, the resources provided to my school are sufficient to meet the social-emotional needs of all students"



Context

Lastly, we used the principal survey to collect school leaders' perspectives on the overall levels of resources available for whole child supports.

Explore

This chart shows the percent of principals at each school level who *agreed* or *disagreed* that the resources provided to their school were sufficient to meet students' social-emotional needs. A **majority of principals *disagreed*** with this statement, especially in elementary and high schools.

Consider

The data on the last few slides raises questions about how different positions are being used to support social-emotional learning, and the places where principals currently feel their needs are being unmet.



Whole Child Approach: Key Questions

What actions can we take at the system-, school- and classroom-level to:

- Better collect and track data on whole child practices?
- Better understand how schools currently use positions and resources to support whole child practices, and the places where principals feel needs are not currently being met?
- Increase use of Tier 1 practices that are embedded in the classroom?

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

- In MCPS, higher-need schools/students get **more**
- In MCPS, higher-need schools/students get a **similar level**
- In MCPS, higher-need schools/students get **less**

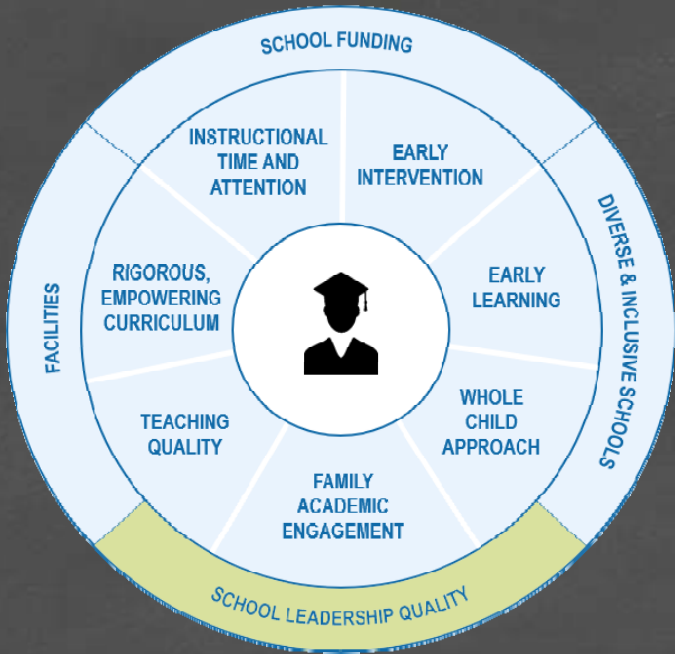
Performance	
School Funding	} <i>Dimensions of resource equity</i>
Teaching Quality	
Instructional Time and Attention	
Rigorous, Empowering Curriculum	
Diverse and Inclusive Schools and Classrooms	
Whole Child Approach	
School Leadership Quality	

You are here



Dimensions of Resource Equity

School Leadership Quality





School Leadership Quality: At a Glance

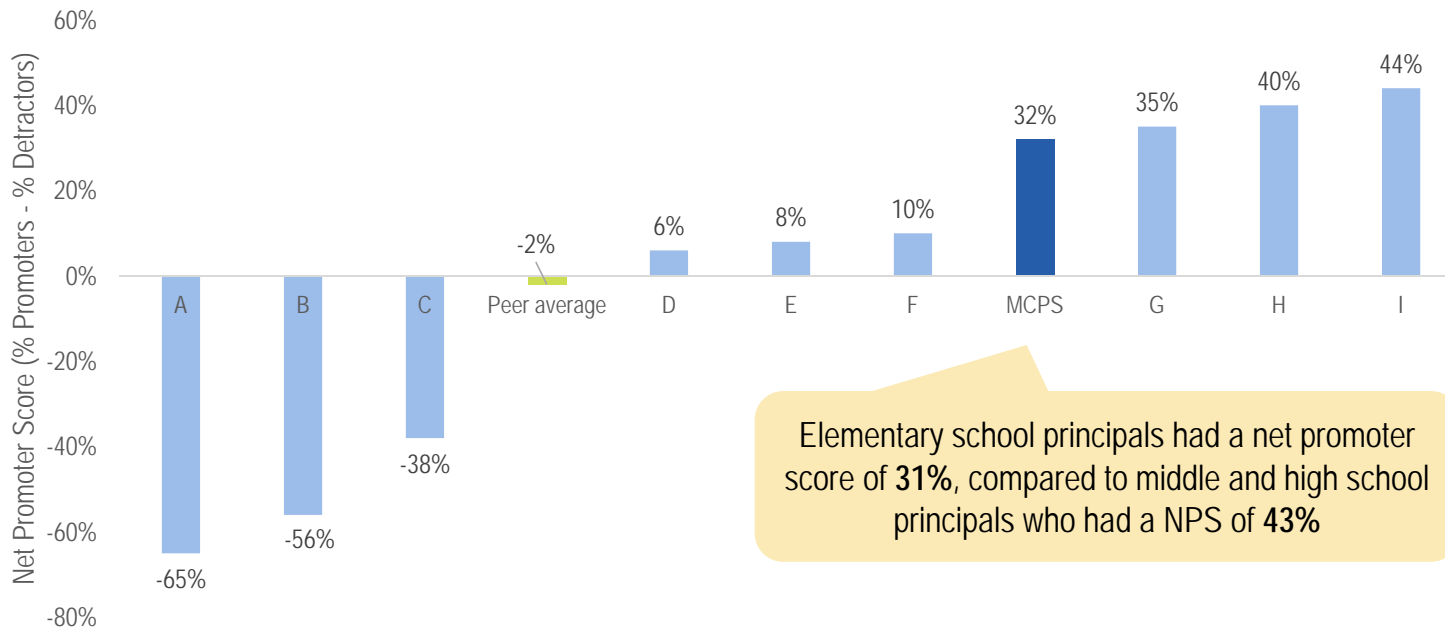
Vision: All students have access to a strong school leader

<p>Why it Matters</p>	<ul style="list-style-type: none"> • Students enrolled in schools with strong school leaders perform better. • School leaders play a critical role in instructional leadership, school culture, and strategic resource use that impacts many aspects of a student’s experience in school.
<p>How it’s assessed</p> <p><i>*Indicates topics addressed in our study</i></p>	<ul style="list-style-type: none"> • Principal quality measures* • Principal distribution across schools* • Principal support* • Principal diversity
<p>Study Insights</p>	<ul style="list-style-type: none"> • Compared to principals in peer districts, MCPS principals are more likely to recommend working in their district, suggesting higher levels of overall job satisfaction. • Higher-need elementary and middle schools are more likely to have novice principals than lower-need elementary and middle schools. This trend is reversed in high school. • From the principal perspective, there are both strengths and opportunities for improvement regarding central office support to principals.

Note on principal quality measures: Similar to teaching quality measures, there is no singular, agreed upon way to objectively measure principal quality. Given available data, our analysis looks at principal years of experience as a proxy for quality. We recognize that this is not a direct measure of quality, and intend this to be a starting point for further conversation.

MCPS principals are more likely to recommend working in the district compared to principals in peer districts

Net Promoter Score (NPS) Across Districts



Elementary school principals had a net promoter score of 31%, compared to middle and high school principals who had a NPS of 43%

Note: Net Promoter Scores are calculated by subtracting the % of respondents labeled “detractors” (those responding 0-6 on likelihood to recommend) from % of respondents labeled “promoters” (those responding 9-10 on likelihood to recommend)



Context

The Net Promoter Score (NPS) is a measure that assesses a stakeholder group’s overall perception and experience with an organization. Here, we will look at the NPS for principals in MCPS.



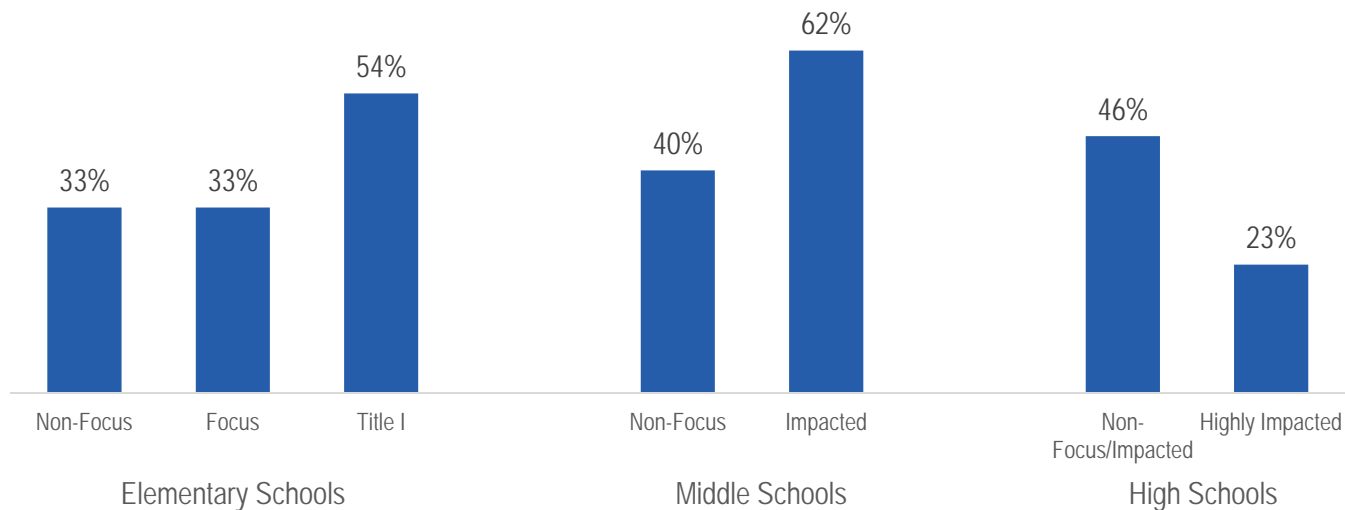
Explore

Net Promoter Score is calculated by asking principals **how likely they are to recommend working in the district** on a scale of 1-10. We calculate the percent of “promoters” (those who responded 9-10) and subtract the percent of “detractors” (those who responded 0-6) to calculate NPS.

We see here that NPS for principals is **higher in MCPS** than in many peer districts. However, there are some differences within MCPS – elementary school principals had a lower NPS on average than middle and high school principals.

Higher-need elementary and middle schools are more likely to have novice principals than lower-need schools

Percent of Schools with a Novice Principal (Less than 3 Years of Experience in MCPS)



Context

As with teaching quality, one proxy for assessing school leadership quality is to look at a school's likelihood of having a novice principal (less than 3 years of experience). In addition to novice principals facing a learning curve as they adjust to a new role, leadership transitions also may reduce stability in the overall school environment, impacting teachers and students.



Explore

This chart shows the percent of schools that have a novice principal by **school level** and **school need**. At the elementary and middle school levels, higher-need schools are more likely to have novice principals, with the majority of higher-need elementary and middle schools being led by a novice principal.

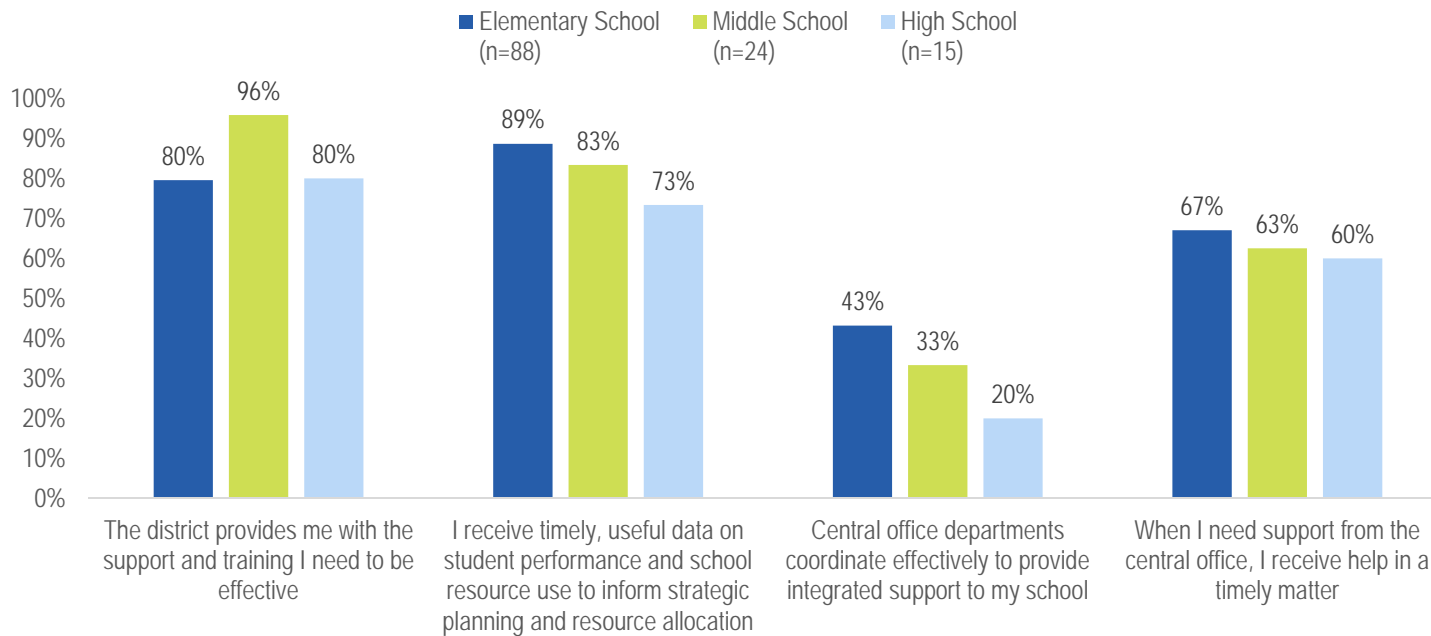


Consider

This data raised the question of how to improve the value proposition in our highest-need schools so that great principals want to work at and stay in those schools.

Overall, principals responded positively to questions on school leader support, with some opportunities for MCPS to improve coordination of supports to schools

Percent of Principals Agreeing to Statement about School Leader Support



Context

There are many ways for central office to provide support, training, and guidance to principals throughout the year. In the principal survey, we asked about principals' experience of some of these supports to identify areas of strength and opportunity for MCPS.



Explore

This chart shows the percent of elementary, middle, and high school principal respondents who agreed with each of the statements below the bars. Overall, principals **responded positively** to these questions – with the majority of principals “agreeing” with 3 of the 4 statements. The lowest rated question across all school levels was “Central office departments coordinate effectively to provide integrated support to my school.”



Consider

This data raised a potential next step of exploring ways to provide **more support and development** for principals, especially given that school leadership quality could also have a significant impact on improving equity and excellence in other key dimensions (e.g. teaching quality).



School Leadership Quality: Key Questions

What actions can we take at the system-, school-, and classroom-level to:

- Attract and retain high-quality principals at our highest-need schools?
- Provide high-quality and integrated support to principals to enable them to make strategic school design decisions that best support their vision and priorities?

Colors indicate if higher-need schools/students get more, less, or the same of this resource as their peers:

In MCPS, higher-need schools/students get **more**

In MCPS, higher-need schools/students get a **similar level**

In MCPS, higher-need schools/students get **less**

Performance	
School Funding	} <i>Dimensions of resource equity</i>
Teaching Quality	
Instructional Time and Attention	
Rigorous, Empowering Curriculum	
Diverse and Inclusive Schools and Classrooms	
Whole Child Approach	
School Leadership Quality	

You are here





Appendix

School Need Designations

- School need categories, as designated by MCPS and used in this report, are as follows:

School Level	School Need Designation (MCPS)	% FARMs Students
Elementary	Non-Focus	Less than 35%
	Focus	35% - 67%
	Title I	67% or higher
Middle	Non-Focus	Less than 20%
	Impacted (Focus)	20% or higher
High	Non-Focus / Impacted	Less than 35%
	Highly Impacted (Focus)	35% or higher

- *Note:* For middle and high schools, higher-need schools may be referred to in this report as “*Focus schools*”.

Financial Analysis: Uses and Functions

Instruction

- Teacher Compensation
- Aides Compensation
- Substitute Compensation
- Librarian & Media Specialist
- Instructional Materials & Supplies
- Other Non-Compensation
- Other Compensation
- Extended Time & Tutoring

Leadership

- Governance
- School Supervision
- School Administration
- Research & Accountability
- Communications
- Student Assignment

Instruction Support & Professional Growth (ISPG)

- Professional Growth
- Curriculum Development
- Recruitment (of Instructional Staff)
- Special Population Program Management & Support

Pupil Services & Enrichment

- Enrichment
- Social Emotional
- Physical Health Services & Therapies
- Career Academic Counseling
- Parent & Community Relations

Operations & Maintenance (O&M)

- Facilities & Maintenance
- Security & Safety
- Food Services
- Student Transportation
- Utilities

Business Services

- Human Resources
- Finance, Budget, Purchasing, Distribution
- Data Processing & Information Services
- Facilities Planning
- Development & Fundraising
- Legal
- Insurance

Coding financial data using these standardized definitions of uses and functions allows ERS to compare financial data across other districts.

Course Schedule Analysis: Subject Areas

- Course schedule analysis in this report focused on student experiences in **core subjects** because these subjects have the most significant and direct impact on academic achievement.
- **Core subjects are defined as follows:**
 - English Language Arts (ELA)
 - Mathematics
 - Social Studies
 - Science
- **Non-core subjects** include art/music, physical education/health, computer literacy/computer science, foreign language, ROTC, and career or vocational classes.
- Classes may also be designated as **support and enrichment** – these include all activities that support the social and emotional growth of students as well as academic support activities (e.g. test prep, advisory, or study skills).

Methodology:

Sizing the drivers of differences in student experience

Throughout this report, we measure differences in student experience across the **dimensions of resource equity** and size the *relative impact* of different drivers in creating these differences. This methodology enables better understanding of the root causes of inequities in student experience to inform opportunities for system- and school-level action. This methodology does not intend to model or project actual changes; rather, the purpose is to assess the relative size of different factors by seeing how changes in those factors impact the overall differences in student experience. To assess the magnitude of each driver, we performed the simulations described below:

Dimension	Driver	How much do the differences in student experience change if...
Teaching Quality	Across School	Every school had the same percent of novice teachers. Within-school differences in teacher assignment across student groups does not change.
	Within School	For a given school, each student group in the school had the same likelihood of having a novice teacher.
Diverse & Inclusive Schools	Across School	Every school had the same percentage of entering students who are ELA-proficient. Within-school differences in percentage of proficient peers across student groups does not change.
	Within School	For a given school, each student group in that school has the same percent of proficient peers in their core classes.
Access to Empowering, Rigorous Curriculum	Student Incoming Performance	For a given school, each student <i>Focus</i> group had the same distribution of incoming performance scores as <i>Monitoring</i> group students in that same school. Within-school differences in enrollment by incoming performance across student groups does not change (e.g. if currently in a school 80% of <i>Monitoring</i> group students who scored a 5 get enrolled in the advanced course, and 60% of Hispanic FARMs students who scored a 5 get enrolled in the advanced course, we would use 80% and 60% respectively).
	Course Assignment Within Schools	For a given school, each student <i>Focus</i> group was enrolled into the advanced course as the same rate as their <i>Monitoring</i> group peers with the same incoming performance score.
	Course Availability Across Schools	If differences in student experience persist after the adjustments for incoming performance and within-school assignment, this suggests that there are schools where <u>all</u> student groups are less likely to access advanced courses, and that higher-need students are disproportionately concentrated in these schools. We did not see this pattern in MCPS.

Methodology: Performance Analysis

- Performance analysis in this report is based on PARCC assessment data, to allow comparability across MCPS and other districts.
- In the *Performance* section of the report, results are based on 2018 scores, which reflect SY2017-18 performance.
- Analyses that compare student experience by “incoming performance” or “incoming proficiency” are based on same-student scores from the prior school year (2017 scores, which reflect SY2016-17 performance)
- PARCC is scored on a scale of 1 to 5, with proficiency defined as a score of 4 or higher. We use “percent of students proficient” as a benchmark to compare schools or groups of students but recognize that proficiency alone does not fully capture MCPS’ goal of educating all students to excellence.
- When assessing percent of students proficient, we do not include scores for tests taken outside of the grade level in which the subject is traditionally assessed. This ensures that proficiency rates are not skewed by students who take the test ahead of schedule or who retake the test in later years.

Elementary School Spotlights: Selection Criteria

Objectives:

- Highlight promising practices in “bright spot” schools to inspire and inform principal action.
- Illustrate how school resources can be configured to enable strategic, integrated school designs that deliver equitable student and teacher experiences in a variety of contexts.

Criteria for selecting schools to be studied:

Criteria for selecting individual schools	Higher-than-expected academic performance given student need
	High African American FARMs student performance
	High Hispanic FARMs student performance
	Small achievement gap between AA/Hispanic FARMs students and other students
	At least 5% of students in school are African American FARMs or Hispanic FARMs
Criteria for selecting groups of schools	Single School Level
	Mix of Special Programs
	Mix of Student Need

Elementary School Spotlights:

Key themes of promising practices

Schools create common experiences for students and teachers...

- Students who are behind receive **differentiated time and attention**.
- Students receive **rigorous instruction** and are held to **high expectations** in every classroom.
- Teachers received **job-embedded professional development** from the school leadership team and teacher teams.
- School leaders create a **strong school culture** that supports whole child approaches and fosters staff community.

...through a common set of essential building blocks...

- Teachers engage in **90+ min** of collaborative planning time.
- Staff **use student data regularly and frequently** to identify students who are behind and to target or adjust supports.
- Staff have **dedicated time to review student data in teams**.
- **Whole child instruction is embedded** in classroom and daily routines.
- **School leaders are deeply involved** in the day-to-day experiences of students and teachers.

...but **implementation methods** differ based on school context

- **Intervention models**, such as co-teaching, push-in, pull-out, or smaller class sizes.
- **Whole child systems and supports**, such as positive behavior intervention, mentoring, and morning meeting.
- **Teacher supports**, such as separate time dedicated to student data vs. bringing into CPT, and structured vs. ad-hoc supports.
- **School leadership roles** that define who works with students vs. teachers, who supports instruction vs. admin and who is a peer leader vs. evaluative leader.

Principal Survey Respondents and Response Rate

School Type	Number of Responses	Response Rate
Elementary School (All)	90	68%
Focus	45	64%
Non-Focus	45	71%
Middle School (All)	25	63%
Impacted (Focus)	14	56%
Non-Focus	11	73%
High School (All)	15	58%
Highly-Impacted (Focus)	7	54%
Impacted/Non-Focus	8	62%
Special/Alternative School	5	63%
Overall	135	65%



Research Highlights: School Funding

Summary: Money matters in schools; it is especially important to the achievement of low-income students over time:

- **Academic Impact:** Although some waves of earlier research did not find a conclusive link between levels of spending and student outcomes, recent studies demonstrate that states that consistently increased investment in their high-poverty districts over multiple years generated better and more equitable student performance outcomes relative to states that did not.¹ When funding increases over time, schools tend to experience smaller student-teacher ratios, increased teacher salaries, and longer school years – which positively impact student outcomes.²
- **Long-Term Impact:** Sustained increases in per pupil spending across a student's academic career have been shown to lead to more completed years of education, higher wages, and reduction in adult poverty. These effects are greater for students from low-income backgrounds.³

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1. Baker, B. (2016). "Does Money Matter in Education?" Albert Shanker Institute. http://www.shankerinstitute.org/sites/shanker/files/moneymatters_edition2.pdf.
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Research Highlights: Teaching Quality

Summary: Consistent access to strong and diverse teachers has a dramatic effect on student achievement and long-term outcomes:

- **Academic Gains:** Teaching quality has a greater impact on student achievement in both math and reading than almost any other in-school factor, and the impact of a high-quality teacher is greater for students who are further behind academically.¹ Research suggests that a one standard deviation improvement in teacher effectiveness has a greater impact on student achievement than a ten-student reduction in class size.²
- **Longer-Term Impacts:** Students assigned to highly-effective teachers experience long-term improvements beyond academic achievement; they are less likely to have children as teenagers, more likely to attend higher-ranked colleges, and, as adults, earn higher salaries, live in higher-income neighborhoods, and save more for retirement.³
- **Value of Diversity:** While *all* students benefit from a diverse teacher workforce, students of color receive particular benefits from teachers of color: they have better classroom experiences, are referred more for gifted and talented programs, and are more likely to graduate from high school and consider college.⁴ One study found that black male students who have at least one black teacher between grades 3-5 are 30% less likely to drop out of high school.⁵
- **Teacher Experience and Effectiveness:** Teaching experience is positively associated with student achievement gains throughout a teacher's career. Most studies find that teachers show the greatest gains from experience during their initial years in the classroom, but continue to make meaningful improvement in their effectiveness past these initial gains.⁶

Sources:

1. Aaronson, D., Barrow, L., and Sander, W. (2007). "Teachers and Student Achievement in the Chicago Public High Schools." *Journal of Labor Economics*, Vol. 25, No. 1: 95-135. <https://www.journals.uchicago.edu/doi/abs/10.1086/508733>.
2. Fryer, R. (2017). "The Production of Human Capital in Developed Countries: Evidence from 196 Randomized Field Experiments," *Handbook of Field Experiments*. Vol. 2: 95-322. <https://scholar.harvard.edu/fryer/publications/production-human-capital-developed-countries-evidence-196-randomized-field>.
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4. Kane, T., and Staiger, D. (2008). "Estimating Teacher Impacts on Student Achievement: An Experimental Evaluation." The National Bureau of Economic Research. <http://www.nber.org/papers/w14607>
5. Rivkin, S., Hanushek, E., and Kain, J. (2005). "Teachers, Schools, and Academic Achievement." *Econometrica*, Vol. 73, No. 2: 417-458. <http://hanushek.stanford.edu/publications/teachers-schools-and-academic-achievement>.
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11. Kini, T., & Podolsky, A. (2016). Does Teaching Experience Increase Teacher Effectiveness? A Review of the Research (Palo Alto: Learning Policy Institute). <https://learningpolicyinstitute.org/our-work/publications-resources/does-teaching-experience-increase-teacher-effectiveness-review-research>



Research Highlights: Instructional Time and Attention

Summary: Strategically increasing students' instructional time and teacher attention to respond to individual learning needs can be a powerful lever for improving student outcomes:

- **Learning Time:** Research shows that adding instructional hours to the school year can increase student outcomes in both reading and math, particularly when the additional time is targeted to meet the needs of students who are further behind.¹
- **Targeted Time and Attention:** Within the school day, increased time and smaller group sizes in core classes can increase student test scores in reading, particularly for students who are further behind.²
- **Frequent Adjustments:** Flexible grouping is an important strategy for providing targeted and individualized instruction while ensuring students aren't permanently tracked into remedial courses; one study found that a five-year flexible grouping intervention increased the percentage of students achieving mastery on literacy assessments in a high-need school.³

Sources:

1. Frazier, J., and Morrison, F. (1998). "The Influence of Extended-Year Schooling on Growth of Achievement and Perceived Competence in Early Elementary School." *Child Development*, Vol. 69, No. 2: 495-517. <http://onlinelibrary.wiley.com/doi/10.1111/j.1467-8624.1998.tb06204.x/full>.
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Research Highlights: Rigorous, Empowering Curriculum

Summary: More rigorous academic content—from underlying curriculum to course materials and assignments—leads to better student achievement:

- **High-Quality Curricula:** Research suggests that rigorous, comprehensive, and standards-aligned curricula and assessments can have a large positive impact on student achievement. This impact is particularly pronounced for less effective teachers, who are more likely to be working in high-need schools.¹
- **Advanced Coursework Pathways:** Enrollment in advanced coursework has been shown to improve student test scores and college and career readiness and success. Enrollment in advanced coursework at each grade level and subject has been shown to lead to additional advanced opportunities for students, underscoring the impact of access to these courses on a student's academic experience.²
- **Rigorous, Engaging, and Culturally-Sustaining Instructional Practices:** Research has shown that having access to grade-appropriate assignments, strong instruction, deep engagement, and teachers who hold high expectations is critical to student outcomes. These components of high-quality instruction are deeply intertwined with each other: the presence of one resource tends to accompany the others and increase their impact on student achievement.³

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- Chiefs for Change (2017) "Hiding in Plain Sight: Leveraging Curriculum to Improve Student Learning" http://chiefsforchange.org/policy-paper/4830/?utm_source=policy-paper
2. Adelman, C (2006). "The Toolbox Revisited: Paths to Degree Completion From High School Through College." Washington, D.C.: U.S. Department of Education.
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Research Highlights: Diverse and Inclusive Schools and Classrooms

Summary: School diversity has been shown to benefit all students, and particularly students from historically underserved backgrounds, for reasons that are not clearly identified in research.

- **Impact for Historically Underserved Students:** The economic composition of a student's classmates can have more of an impact on achievement than that student's own poverty status. Low-income students who attend economically mixed schools have higher achievement and lower likelihood of adult poverty than those who attend schools with high concentrations of poverty. In fact, multiple analyses have found that economically-disadvantaged students who attend economically mixed schools typically outperform non-economically disadvantaged students who attend schools with high concentrations of poverty.¹
- **Impact for All Students:** Research shows that all students benefit from diverse and inclusive schools and classrooms in the form of increased creativity, motivation, deeper learning, critical thinking, and problem-solving skills.²

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Research Highlights: Whole Child Approach

Summary: A strong school climate that makes all students feel respected and like they belong in their school is essential for student learning:

- **Relationships:** Strong school cultures with strong adult-to-adult, adult-to-student, and student-to-student relationships create a context in which social, emotional, and academic development can be accomplished. Research shows that student engagement and relationships with teachers and peers is key for student academic success: one study found that in classrooms with higher levels of student engagement, students experienced two additional months of learning. Further, teachers value school culture more than almost any other factor in their job satisfaction and consider relationships with other adults a core component of their decision to stay and grow at a school.¹
- **Social-Emotional Learning:** Research shows that students who participate in social-emotional learning programs have greater academic performance than their peers. Students who have unmet social or emotional needs or who don't feel physically or psychologically safe are at greater risk of poor performance, and research has linked improving student social-emotional competencies to both immediate and long-term benefits.² As districts provide rigorous academic content for all students, it is critical that students have the social and emotional skills they need to participate in rigorous learning.
- **Fair Discipline Practices:** Race disparities in disciplinary actions are well documented and an important barrier to equitable student outcomes.³ Creating school cultures in which teachers and students know and trust each other is critical to ensuring that discipline practices are experienced equitably across students and contribute to supporting the whole child.⁴
- **Address Adult Biases:** As systems and schools design and implement whole child approaches, it is critical to do so with an explicit focus on racial equity. This means that the work begins from student strengths, not deficits, and that adult biases and beliefs are deliberately addressed. Approaches that lack this focus risk unintended negative effects for students of color and indigenous populations.⁵

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Research Highlights: School Leadership Quality

Summary: Students enrolled in schools with highly effective leaders perform better.

- **Instructional Leadership:** Having a principal who is a strong instructional leader increases teacher effectiveness and the degree to which teachers collaborate with each other around curriculum and instructional practices. One study found that school leaders who received training on lesson planning, data-driven instruction, and teacher observation and coaching saw significant increases in student achievement.¹ Another study found that, on average, a highly-effective principal raised student achievement by between two and seven months of learning in one school year.²
- **School Culture:** School leaders have been shown to have a profound impact on school culture, a key component of teacher retention.³ Teachers have higher satisfaction and retention rates in schools that have a positive working environment, regardless of a school's demographic characteristics. The biggest drivers of teacher satisfaction include relationships among colleagues and support from school leaders, factors that are also tied to increased student achievement.⁴
- **Strategic Resource Use:** Principals must be strategic talent managers and school designers. Research shows that schools with strong leadership have lower turnover rates and higher strategic retention rates, meaning the teachers who leave the school are likely to be less effective than those who stay.⁵

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