

# RESEARCH & EVALUATION

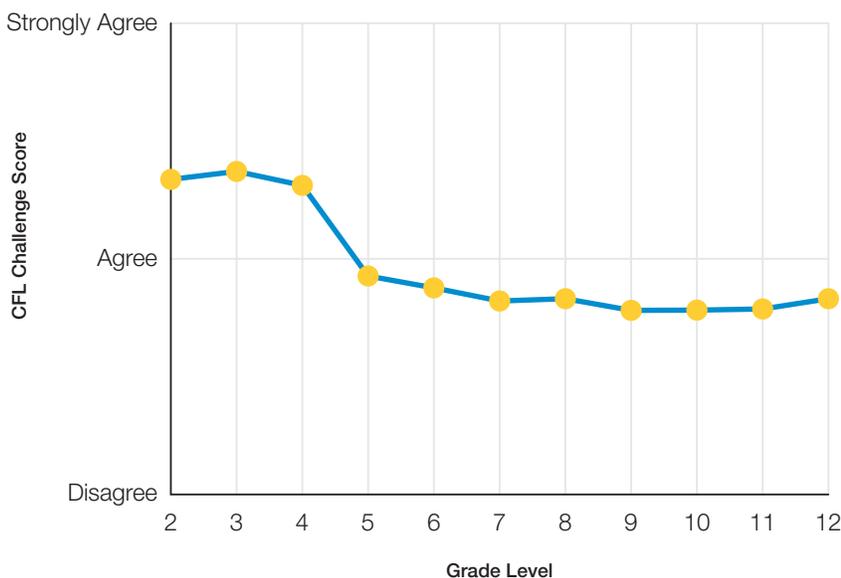
## Challenge Research Brief

This report describes new research on the importance of being challenged for students in the Cleveland Metropolitan School District (CMSD). It also offers recommendations for how to make students feel more challenged. Challenge here refers to how much students perceive that teachers and other adults in the school encourage them to think, work hard, do their best, and connect what they are learning in school to life outside of school. Teachers constructively challenge students when they require students to explain their answers and share their ideas about things they are learning in class and when they assign work that pushes students beyond what they already know. Throughout this brief, we use the term “challenge” to refer to all of these ideas.

### How Challenged Do Students Feel In Their Classes?

In grades 2-4 (elementary), students in CMSD, on average, agree that they are challenged based on the “challenge score” on the Conditions for Learning (CFL) survey (Figure 1). A student’s challenge score is based on their responses to 18 CFL survey items. For example, one item on the CFL regarding challenge is, “My teachers give me work that is interesting.” In the middle grades (5-8) and in high school, the average student response to questions about challenge falls between “disagree” and “agree” (on a 4-point scale ranging from “strongly disagree” to “strongly agree”). Students report feeling most challenged in grade 3, with a decline in perceptions from the elementary to the middle and high school grades and low point in grade 10.

Figure 1. CMSD Students’ Perceived Challenge, by Grade



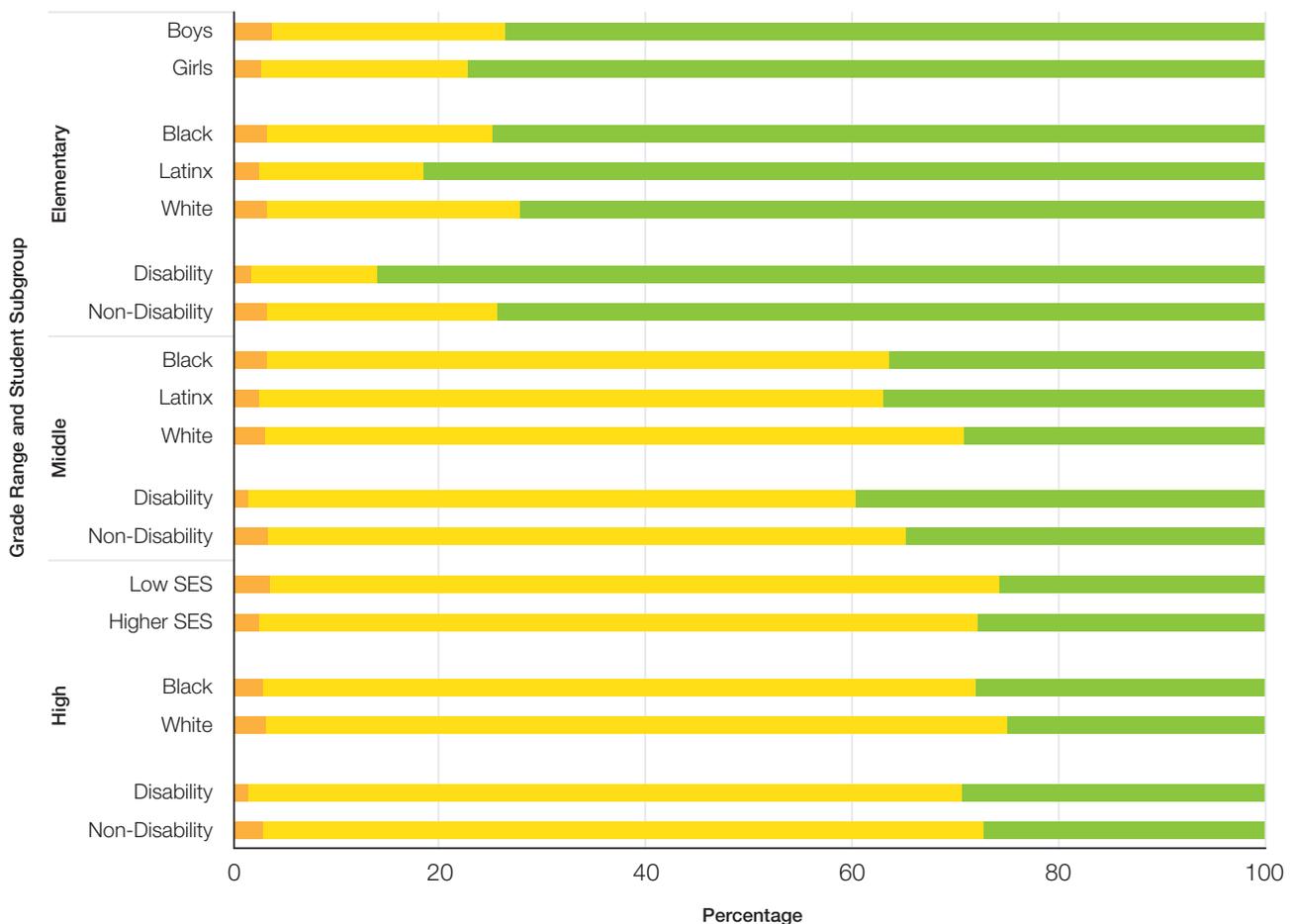
“ If a student’s challenge score increases by one point from the preceding year, she is predicted to attend about two additional days of school.

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Across CMSD’s schools last year, there are some significant differences in perceptions of challenge among different student groups (see Figure 2). All else being equal:

- The largest gaps are generally between students with disabilities and their peers. In elementary (grades 2-4), middle (grades 5-8), and high school, students with disabilities (i.e., those with an IEP) feel substantially more challenged than students without disabilities.
- There are some significant racial/ethnic gaps in perceptions of challenge: across all levels, Black students report feeling more challenged than White students, and in elementary and middle school—but not high school—Latinx students report feeling more challenged than White students. In middle school only, Black students perceive greater challenge than Latinx students.
- In elementary school, girls feel more challenged than boys. There is no significant difference in perceived challenge between boys and girls in middle and high school.
- In high school, students who live in lower-socioeconomic status (SES) neighborhoods (where the median household income is less than \$30,000 per year) report feeling less challenged than students from higher-SES neighborhoods. There are no gaps between these groups in elementary and middle school.

**Figure 2. Significant Differences in Perceived Challenge among CMSD Student Groups across All District Schools**



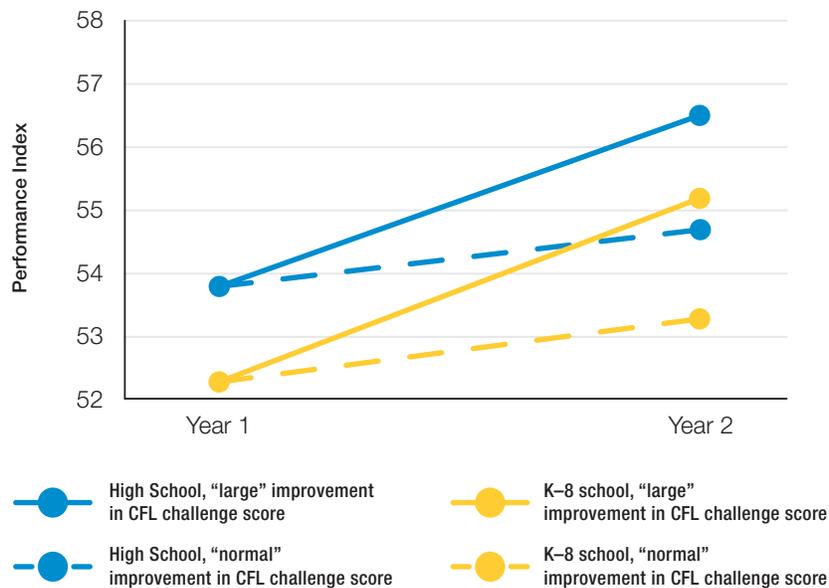
SES = socioeconomic status

Very Unchallenging    Unchallenging    Challenging    Very Challenging

## Challenge and School Performance

CMSD schools where students feel more challenged perform better academically. For CMSD K-8 schools, challenge (the average of all CFL challenge scores among students in a school) is linked with performance index (PI) and attendance rate. Every school year, the typical CMSD school’s average challenge score goes up or down about a tenth of a point. A CMSD primary school that improves its challenge by this “normal” amount from one year to the next would expect its PI to improve 1.0 point (see Figure 3) and its attendance rate to improve 0.2 percentage points. However, if the same school improves its challenge score a “large” but reasonable amount (say three tenths of a point), its PI would be expected to go up 2.9 points and its attendance rate to go up 0.6 percentage points. These analyses account for any changes in schools’ demographics and enrollment that might explain shifts in perceptions of challenge and PI.

**Figure 3. Change in an Average CMSD K-8 and High School’s Performance Index from One Year to the Next with “Normal” and “Large” Improvements in Challenge**



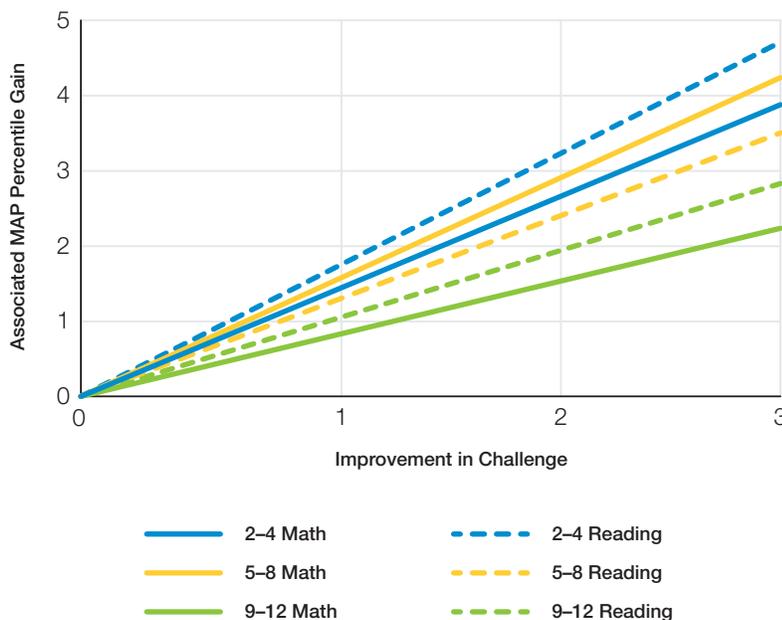
**Note:** A “large” improvement in challenge is a 0.3-point improvement in the average CFL challenge score; a “normal” improvement is a 0.1-point improvement

For CMSD high schools, the link between challenge and performance is comparable to that of K-8 schools. A CMSD high school that improves its level of challenge by a “normal” amount from one year to the next would expect its PI to improve 0.9 points and its attendance rate to improve 1.2 percentage points. If the same high school improves its challenge score a “large” amount, its PI would be expected to go up 2.7 points and its attendance rate to go up 3.7 percentage points. The gains in PI associated with “large” improvements in challenge would have moved eight CMSD schools from an F to a D grade on PI on the state report card in 2017-18 and five schools from a D to a C.

## Challenge and Student Performance

Across all grade levels, CMSD students who view their classes as more challenging have higher math and reading achievement. From one marking period to the next, if a student's challenge score increases by one point on the CFL survey (for example goes from an average of "agree" to "strongly agree"), her achievement is expected to increase by about 1 to 2 percentile points on the math and reading Measures of Academic Progress (MAP) tests (see Figure 4). Challenge matters most for the achievement of students in elementary and middle school, but is still significant for high school students.

Figure 4. Associated Gain in a CMSD Student's MAP Percentile for Gains in CFL Challenge Scores, by Grade Range and Subject



“ Gains in PI associated with large improvements in challenge would have moved eight CMSD schools from an F to a D grade on PI on the state report card in 2017–18 and five schools from a D to a C. ”

If a CMSD student's challenge score were to move from the lowest to the highest value (a 1 to a 4) from one marking period to the next, her achievement would be expected to improve:

- 6.3 percentiles in math and 5.9 in reading in elementary school;
- 4.3 in math and 3.4 in reading in middle school; and
- 2.8 in math and 2.5 in reading in high school.

In short, improving students' challenge at school may bring with it an increase in their academic achievement.

The challenge-related item on the CFL survey that most strongly predicts students' math achievement across all levels is, "The homework I get from my teachers help me learn." The question that most strongly predicts reading achievement in elementary and middle school is, "my teachers ask me to explain my answers." And the question that most strongly predicts reading achievement in high school is, "Students in this school are expected to take four years of math."

## Challenge and Student Attendance and Behavior

Individual CMSD students across all grade levels attend school more often when they feel more challenged by adults at school. In a 180-day school year, if a middle or high school student's challenge score increases by one point on the CFL survey (for example goes from an average of "agree" to "strongly agree") from the preceding year, she is predicted to attend about two additional days of school. An elementary student whose challenge score increases by one point is predicted to attend about one additional day of school. Furthermore, students in middle and high school receive fewer discipline referrals when they view their school as more challenging.

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If a high school improves its challenge score a large amount, its PI would be expected to go up 2.7 points and its attendance rate to go up 3.7 percentage points.

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## How to Improve Challenge

According to CMSD Humanware, there are a number of measures that schools can take to improve challenge, high expectations, and rigor. These include:

- Supporting the development of teacher's cultural competence and use of culturally responsive teaching strategies.
- Teachers should provide meaningful feedback to students' school work and explicitly state their high expectations for students' performance
- Teachers should challenge and academically support students in terms of the level of effort they put forth, as well as the academic and behavioral standards to which they are expected to achieve.
- All students should be provided access to high-level, demanding courses, as well as service learning opportunities, extra-curricular activities, and internships that allow them to explore their postsecondary options.
- Encouraging school-based adults to be approachable and resourceful, to provide both grade-appropriate challenging tasks and support for students' academic success. (e.g. connecting students with college and career-related opportunities).

Given the student subgroup differences in perceptions of challenge noted above, schools should consider how these measures may affect different types of students. For example, if boys find their elementary school to be less challenging than girls, it may be important to tailor services to boys, in particular.

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