

Minnesota Student Achievement - Exploring Variability in MCAs

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University of Minnesota

Achievement Gaps

Typically, achievement gaps are simply defined in terms of average score differences between students of color and White students. Perhaps the most common question regarding the magnitudes of achievement gaps is about the role of socio-economic status (SES). Ideally, we would have a complex measure of SES, including family income, education level, and other resources. But typically we only have participation in free and reduced-priced lunch programs (FRL) as an indicator of SES. Unfortunately, we know there are limitations in this indicator, particularly for students in high school, who are less likely to participate. But, it is a powerful explanatory variable when examining test performance, both at the student and the school levels.

The Importance of Variability

We typically report and focus on mean scores and the percent meeting standards. However, in most schools, teachers do not work with a majority of students with performance at the mean – teachers don't teach the percent meeting standards. Teachers and schools (and communities) are struggling to meet the needs of diverse students – particularly students who differ in academic preparation, in academic experience, and in academic achievement. This variability of student preparedness and achievement needs to be explored and acknowledged.

Defining High and Low-Poverty Schools

For the purpose of examining the distribution of schools based on percent of students participating in FRL, we use the categories defined by the National Center for Education Statistics (also used by NAEP, the National Assessment of Educational Progress). They define high poverty schools as those with more than 75% students eligible for free or reduced-price lunch (FRL) and low poverty schools are those with 25% or less students eligible for FRL. NCES¹ reports that about 25% of the nation's public schools are high-poverty schools and 18% are low-poverty schools (2013-14).

In MN, 23% of schools are low poverty schools and 18% of schools are high poverty schools. This is the inverse of what we see nationally.

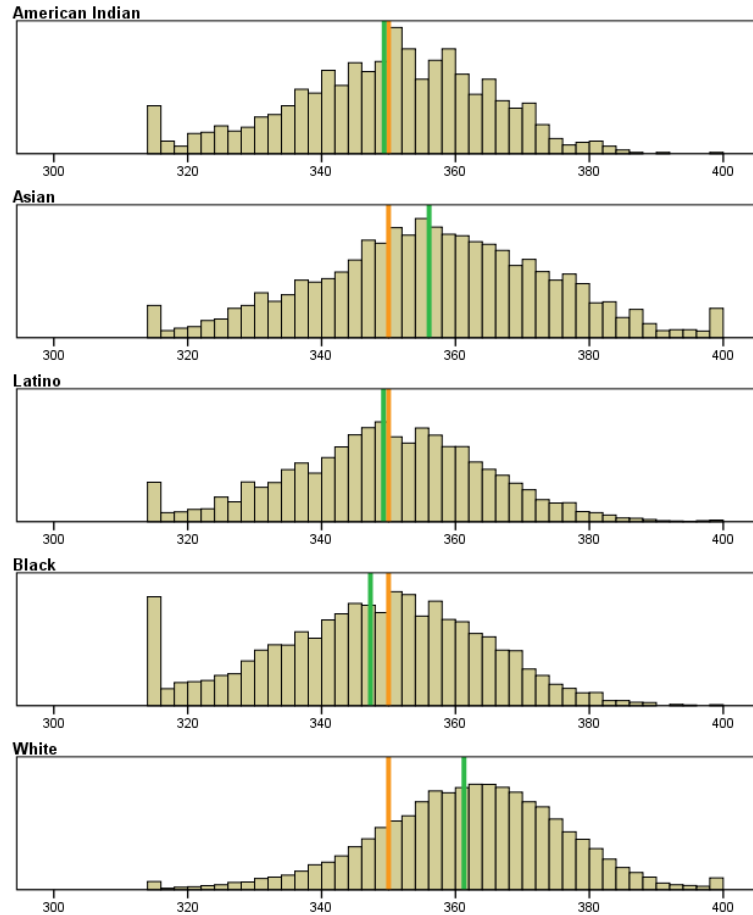
Key Findings

- Students in each racial/ethnic group vary substantially – in most grades, students in each group achieve the lowest and highest scores, with the exception of American Indian students in mathematics grades 5-8 who do not obtain the highest score.
- School means vary substantially and the mean scores of high-poverty schools are much lower than the mean scores of low-poverty schools, with little overlap
- Within each racial/ethnic group, students participating in FRL score much lower than students not in FRL (Asian students even more so).
- After accounting for FRL status and school poverty, race/ethnic gaps are reduced, but still large.
- On average, American Indian, Latino, and Black students not in FRL score at levels near White students in FRL, generally across grades and subjects.

¹ National Center for Education Statistics. (2016). *The condition of education 2016*. Washington DC: Institute of Education Sciences, US Department of Education. Retrieved from <http://nces.ed.gov/pubs2016/2016144.pdf>

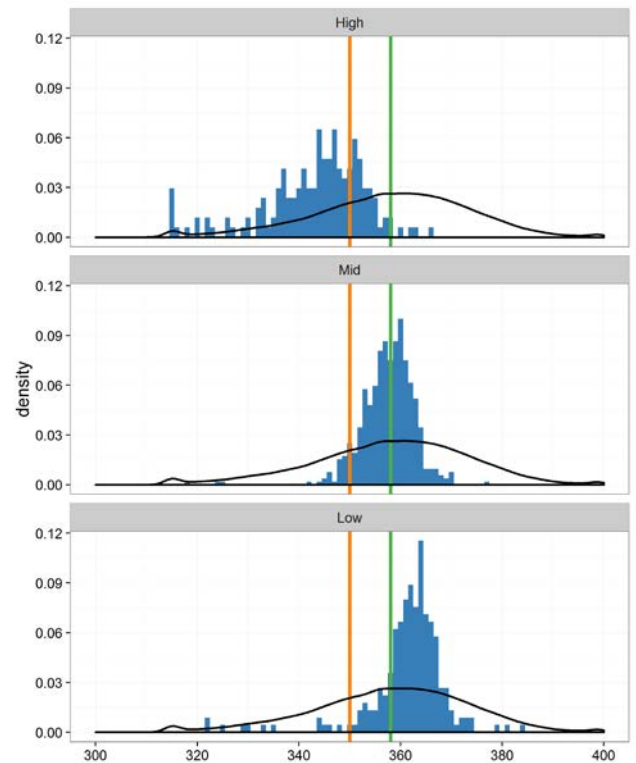
MATHEMATICS – GRADE 3 – 2014 MCA Score Distributions – Race & FRL

Student Score Distributions Vary by Race



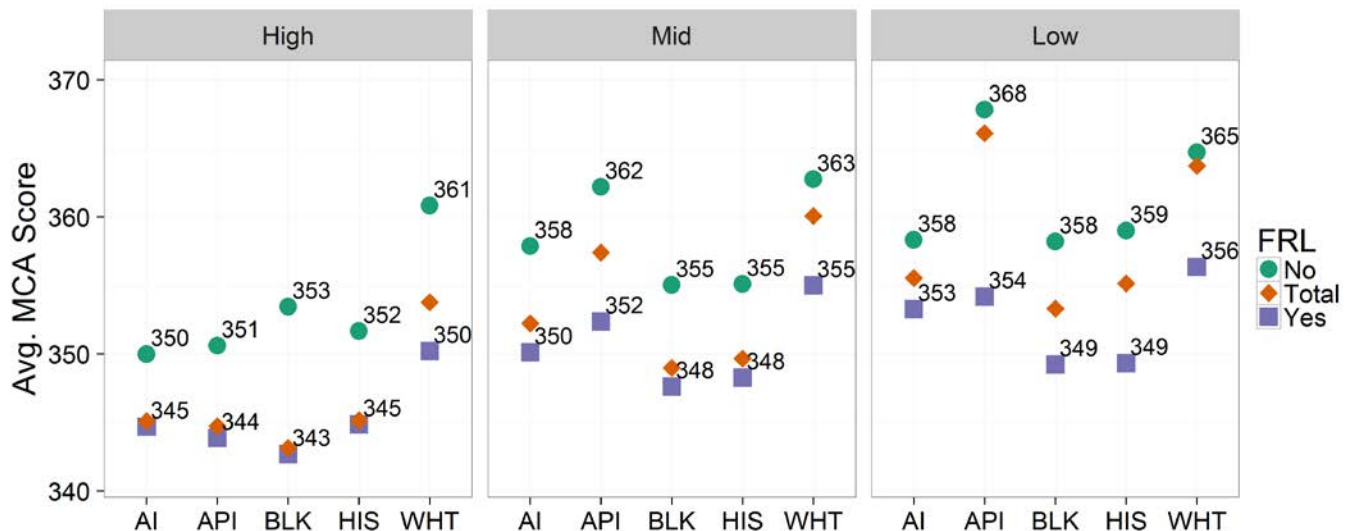
- Each group achieves the lowest & highest possible score.
- Orange bar = 350, *Meets Standards*.
- Green bars = Group mean.

School Means Vary by School Poverty Status



- The bell-shaped curve represents the distribution of scores for all students.
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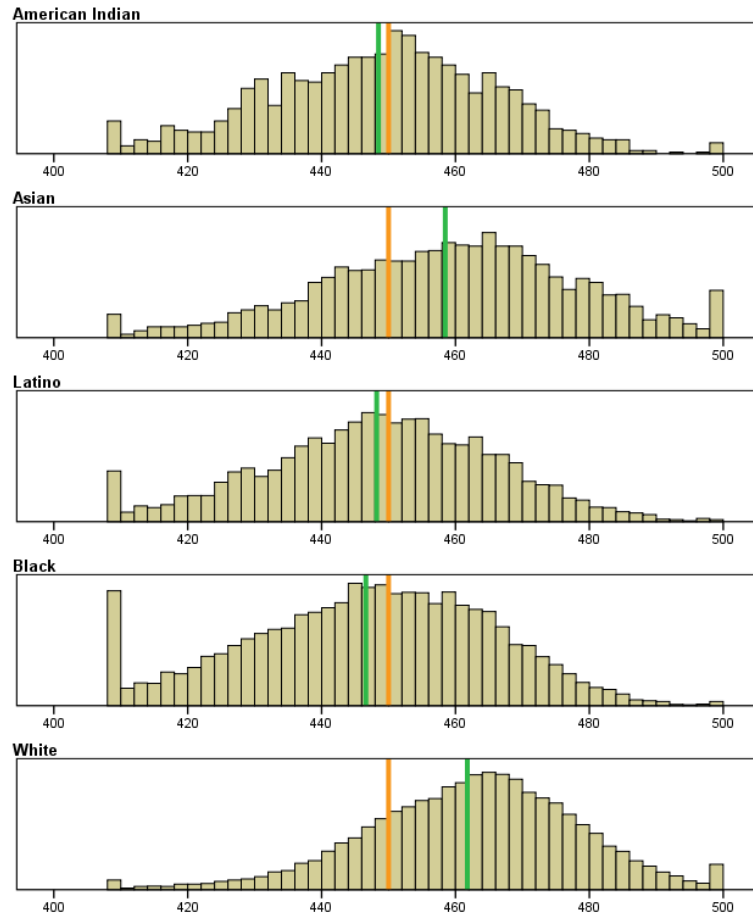
Student Mean Scores Vary by School Poverty, Race, & FRL Status



- Mean Scores by Student Free/Reduced Lunch Status (Yes, No, Total average)
- Within High, Mid, & Low Poverty Schools

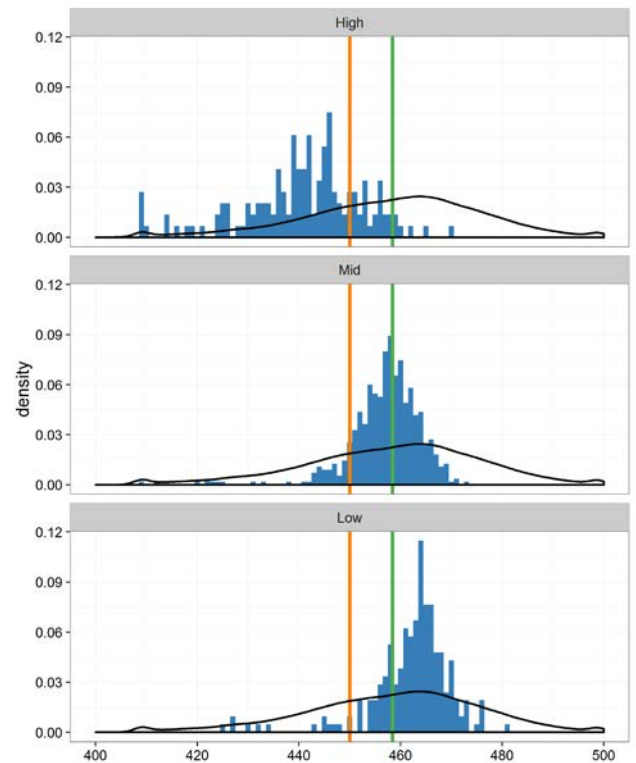
MATHEMATICS – GRADE 4 – 2014 MCA Score Distributions – Race & FRL

Student Score Distributions Vary by Race



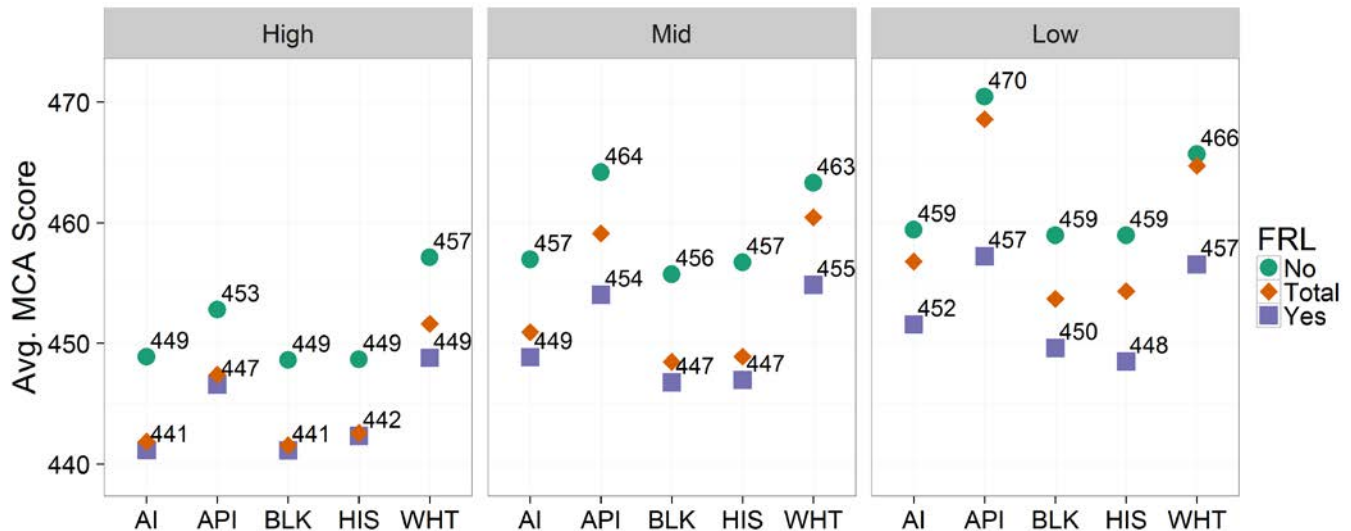
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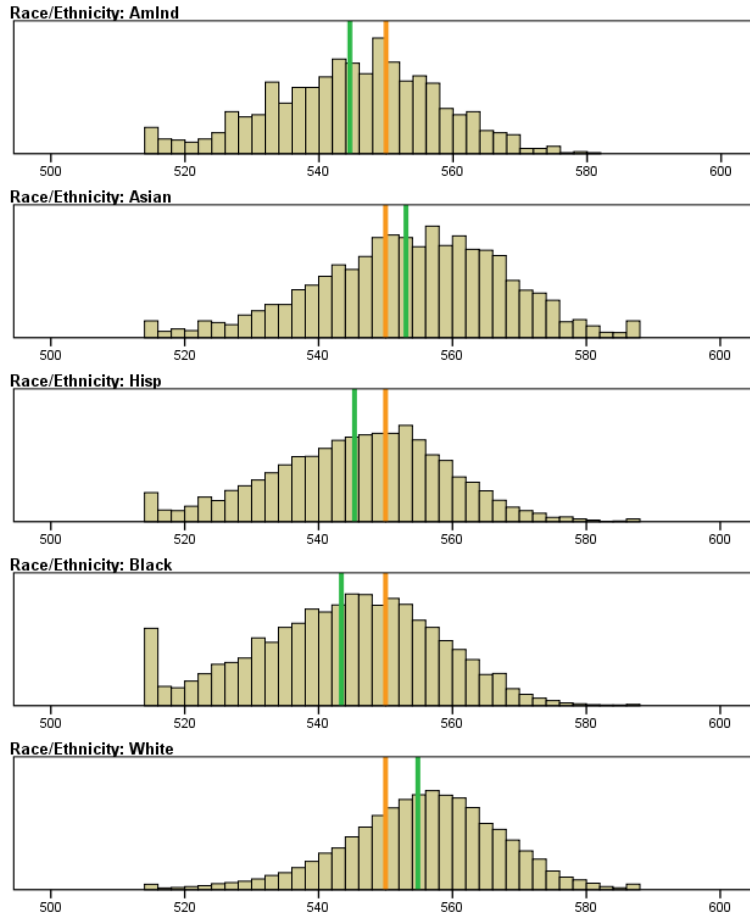
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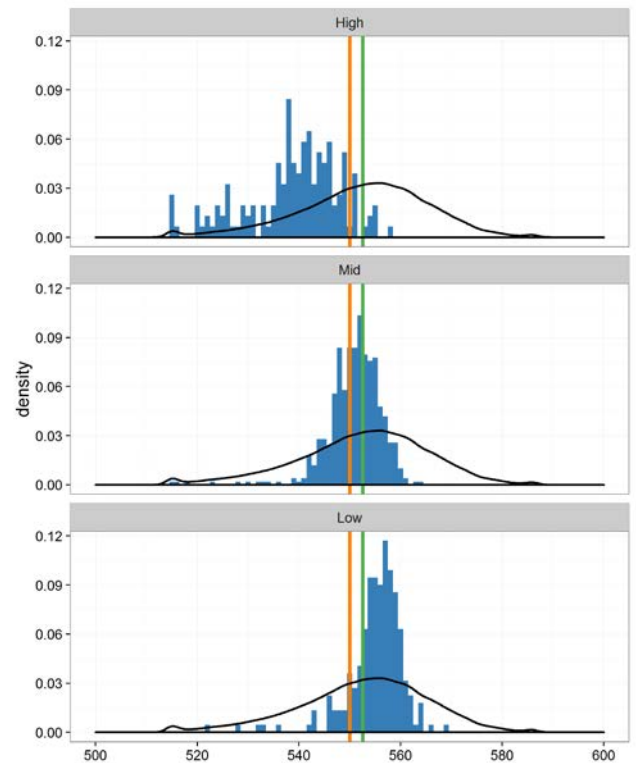
MATHEMATICS – GRADE 5 – 2014 MCA Score Distributions – Race & FRL

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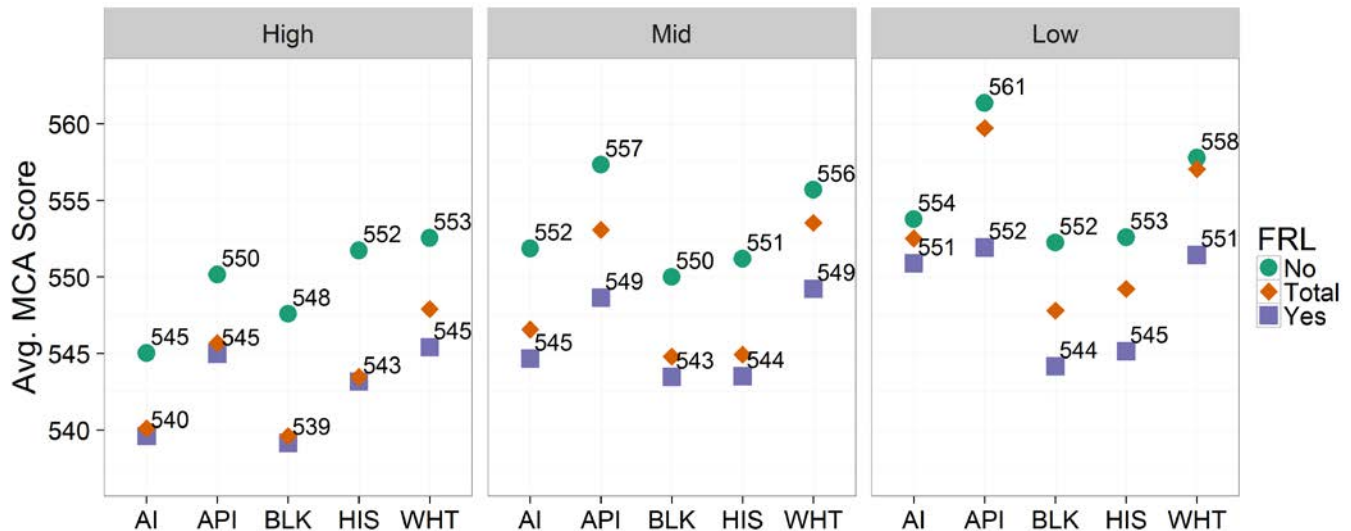
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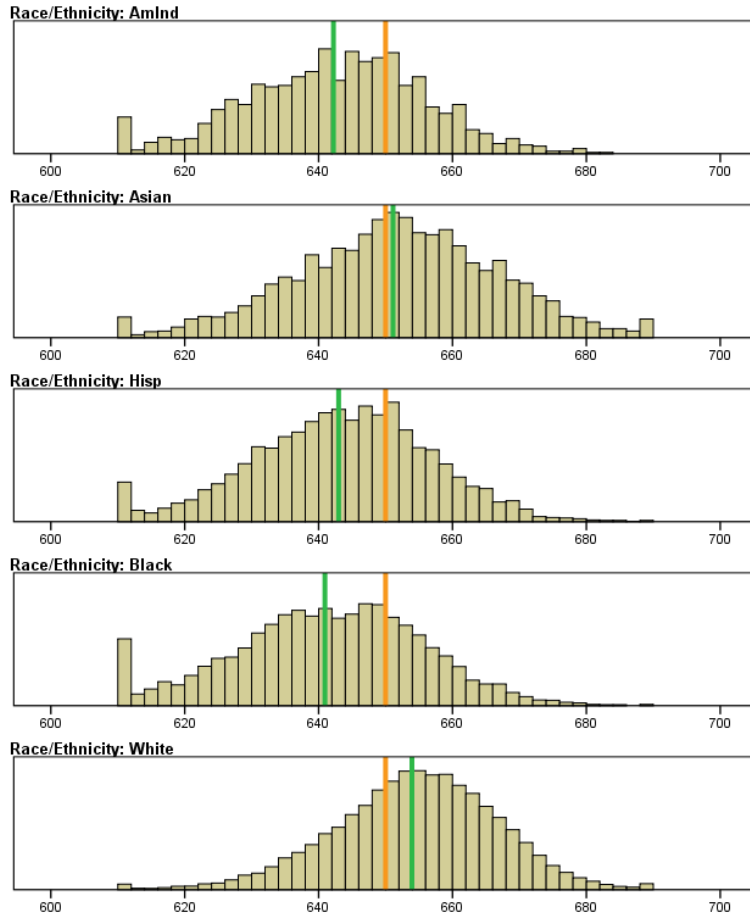
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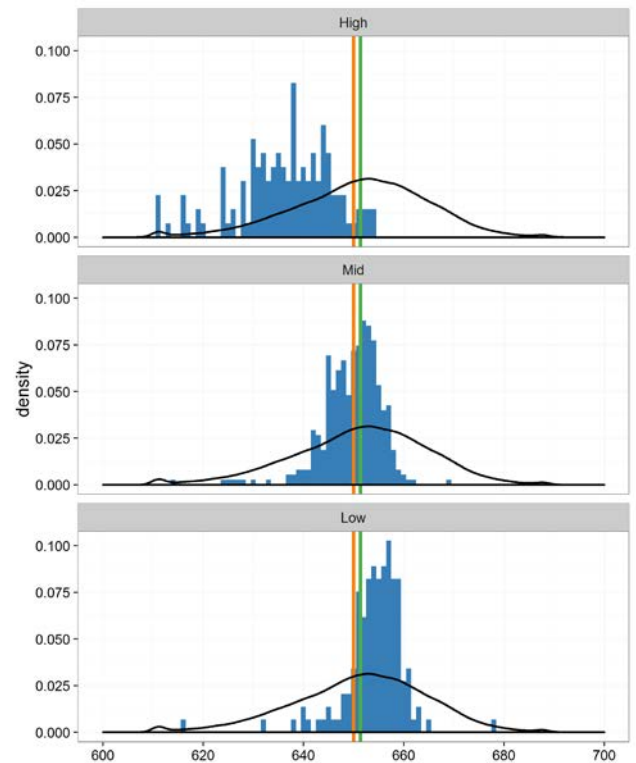
MATHEMATICS – GRADE 6 – 2014 MCA Score Distributions – Race & FRL

Student Score Distributions Vary by Race



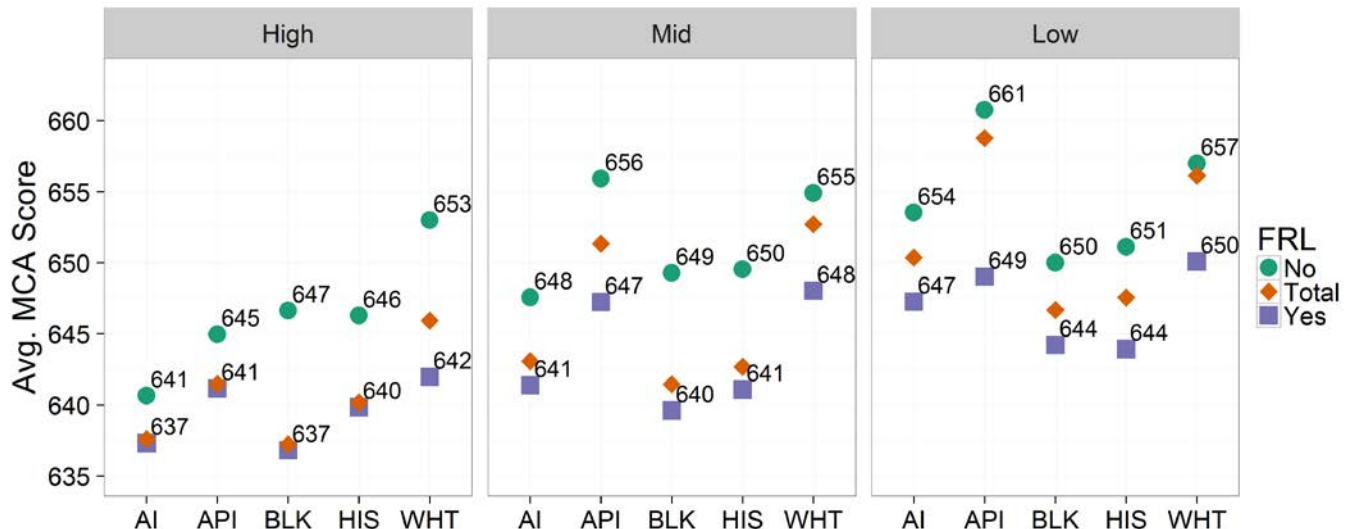
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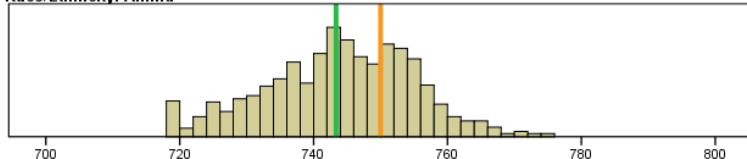


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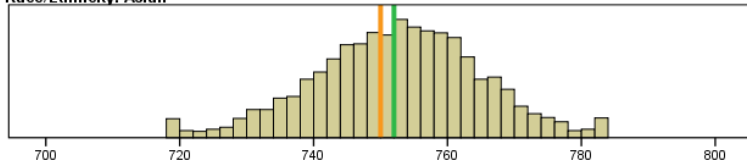
MATHEMATICS – GRADE 7 – 2014 MCA Score Distributions – Race & FRL

Student Score Distributions Vary by Race

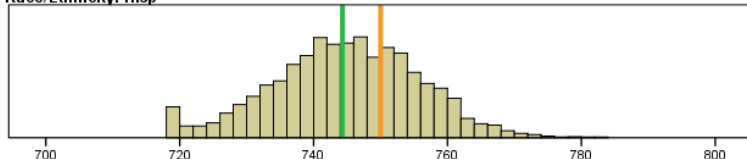
Race/Ethnicity: Amlnd



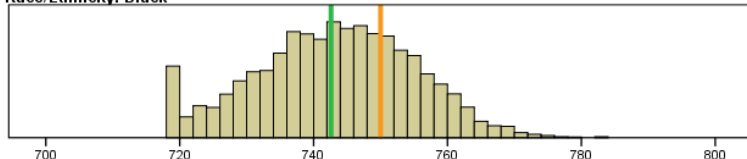
Race/Ethnicity: Asian



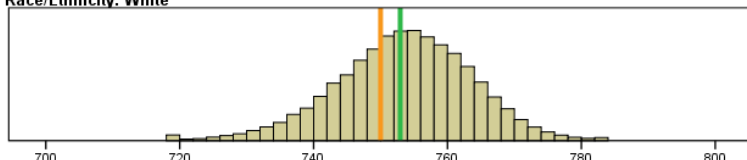
Race/Ethnicity: Hisp



Race/Ethnicity: Black

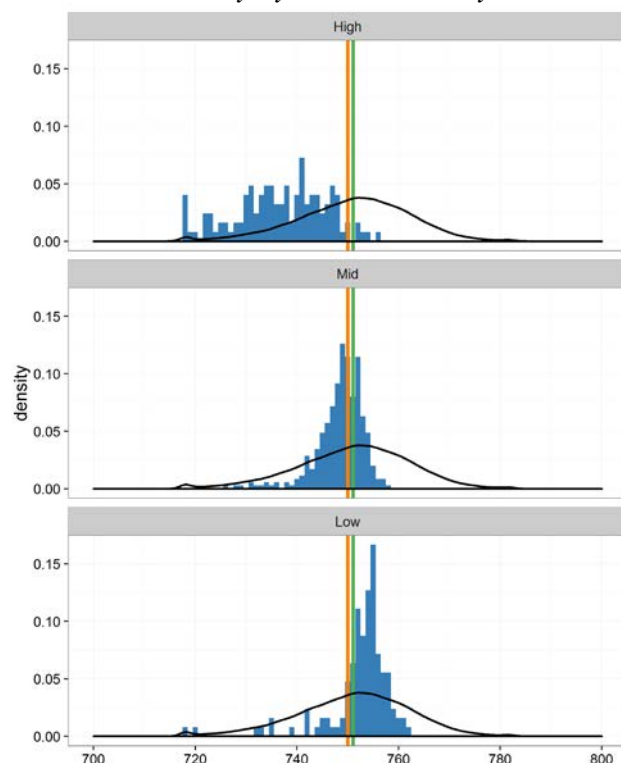


Race/Ethnicity: White



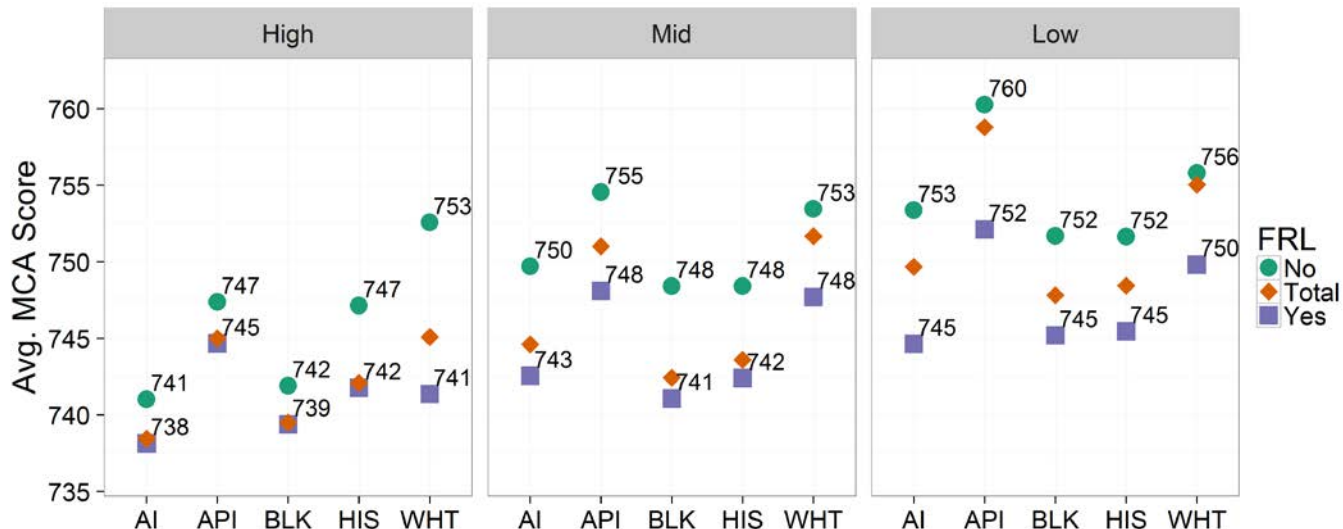
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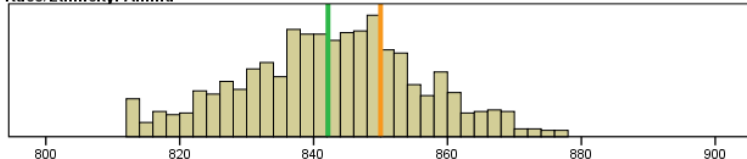


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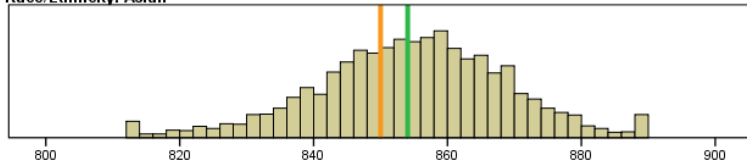
MATHEMATICS – GRADE 8 – 2014 MCA Score Distributions – Race & FRL

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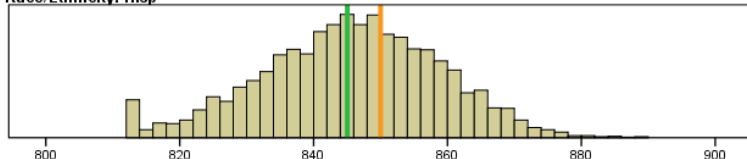
Race/Ethnicity: AmInd



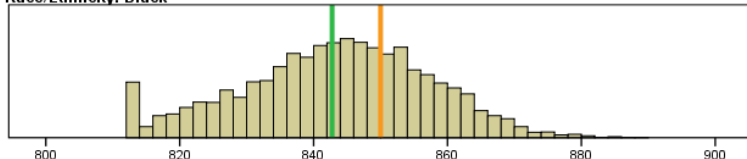
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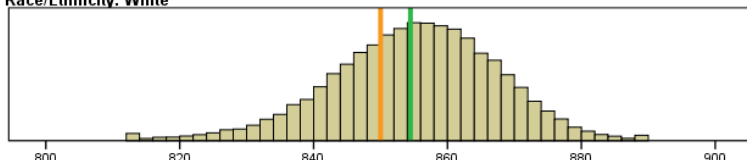
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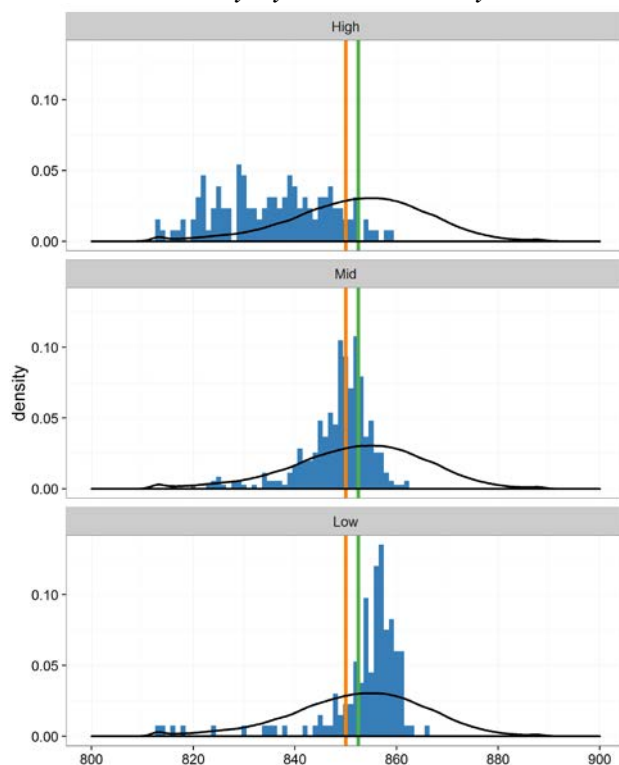


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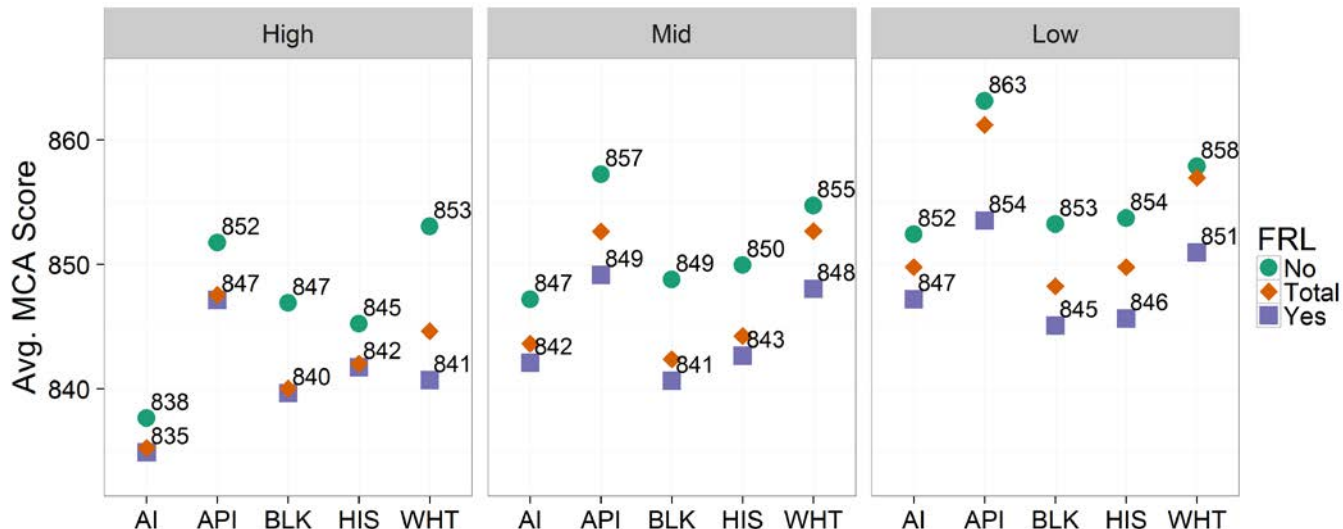
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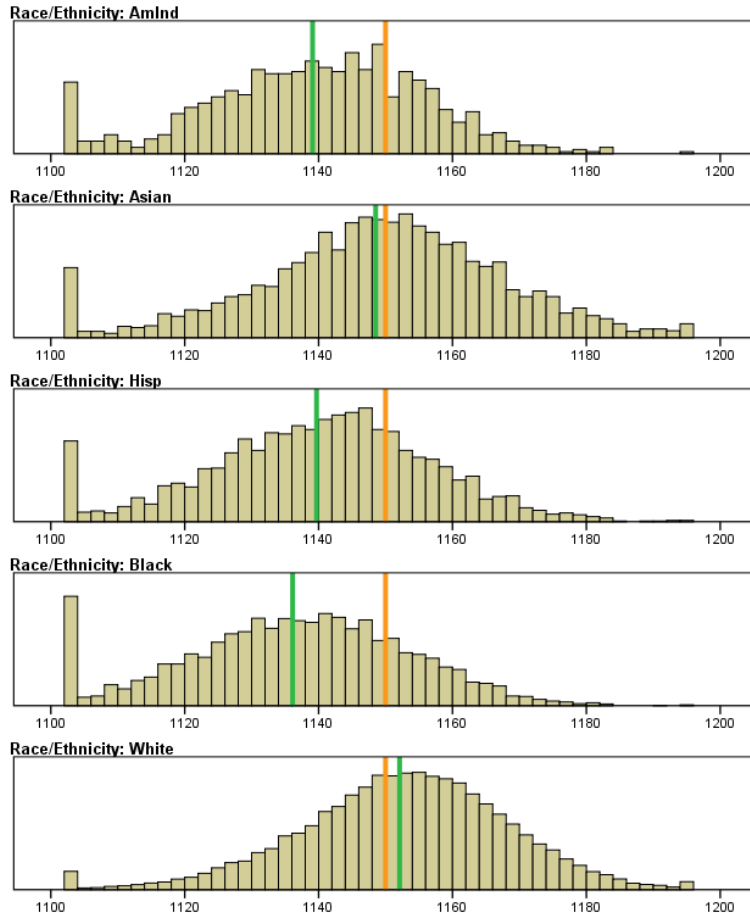
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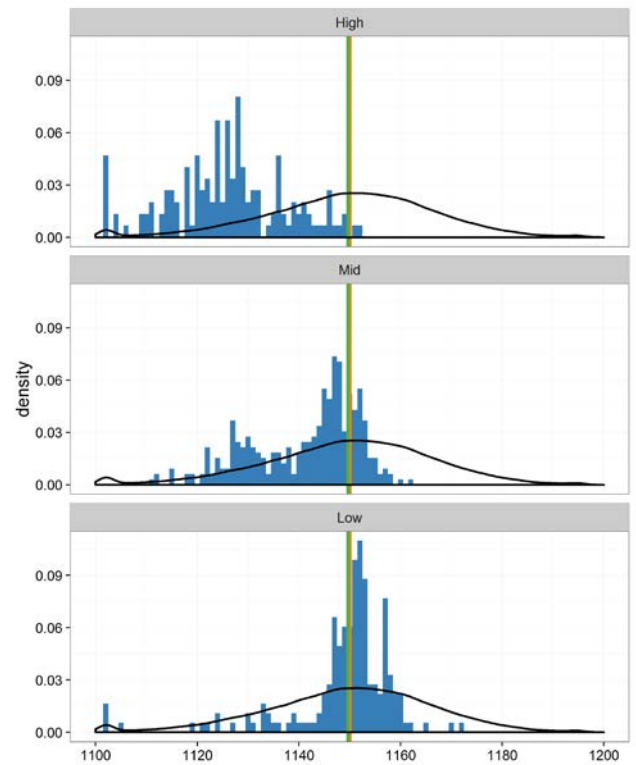
MATHEMATICS – GRADE 11 – 2014 MCA Score Distributions – Race & FRL

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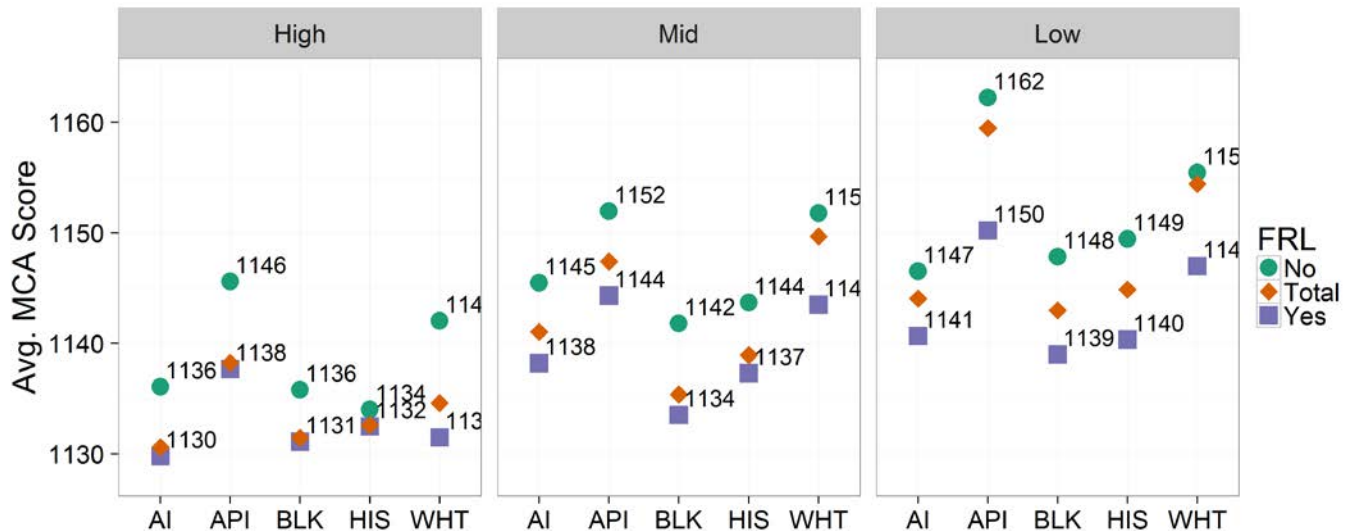
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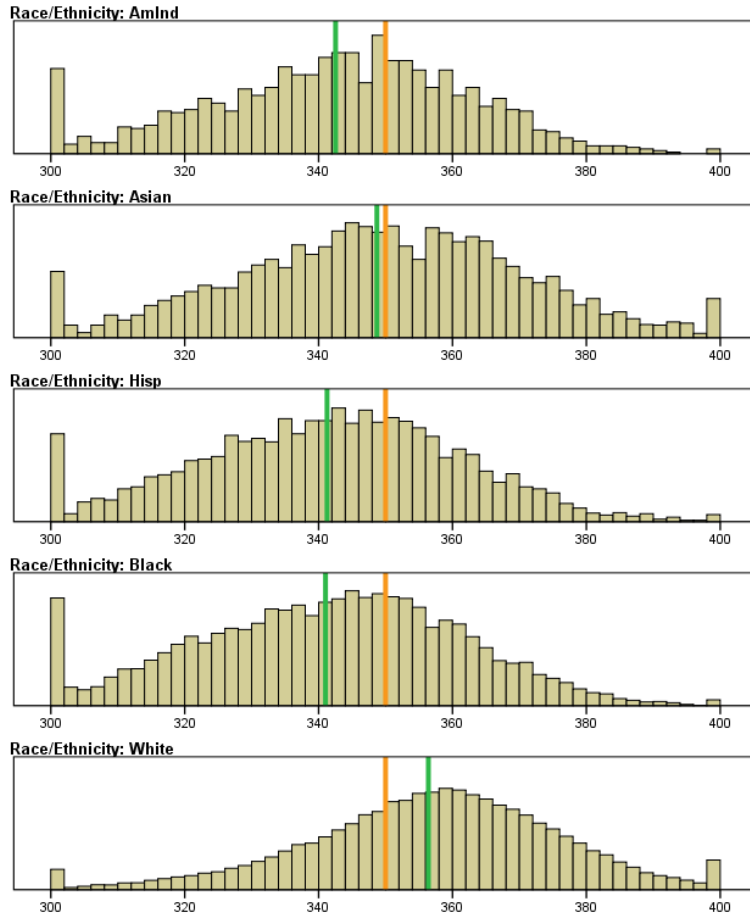
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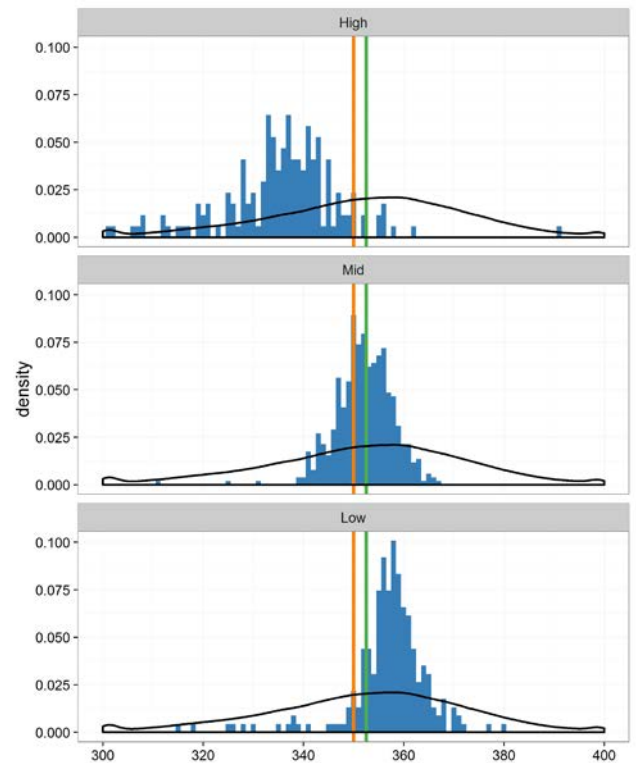
READING – GRADE 3 – 2014 MCA Score Distributions – Race & FRL

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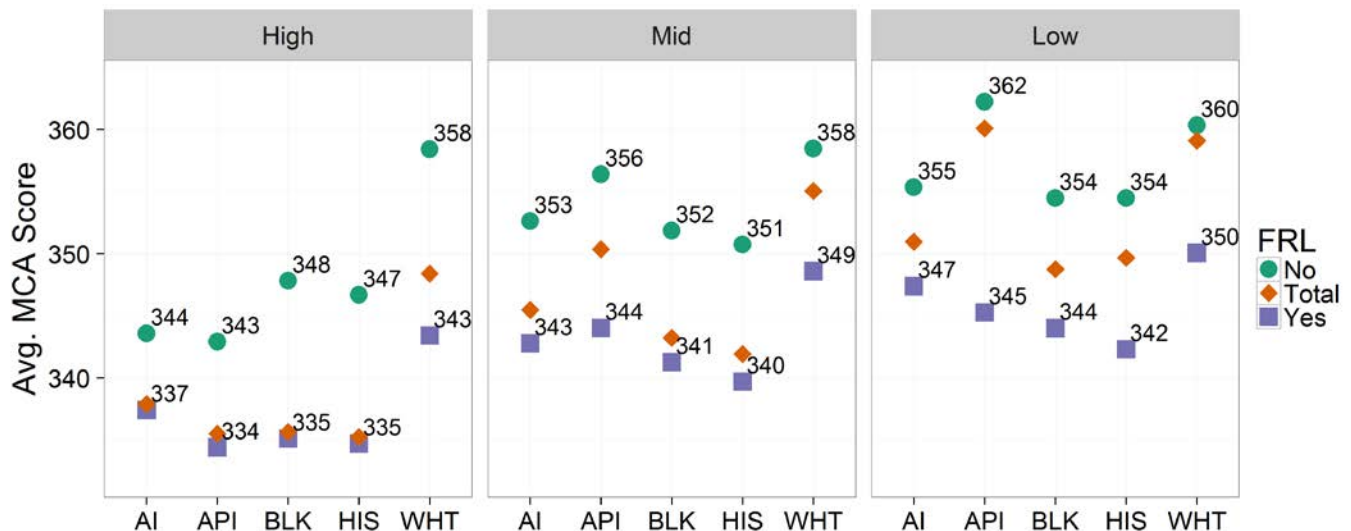
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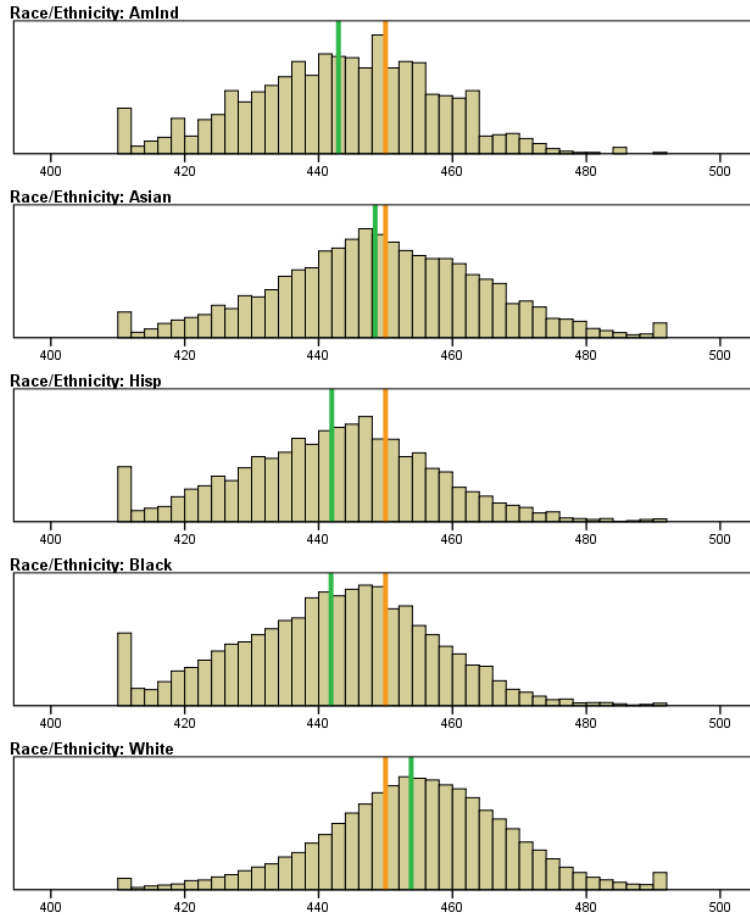
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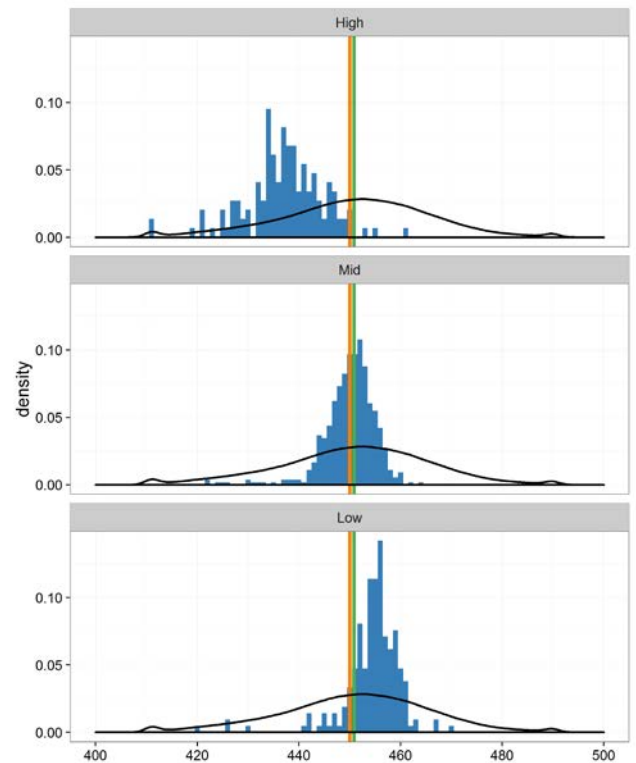
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Student Score Distributions Vary by Race



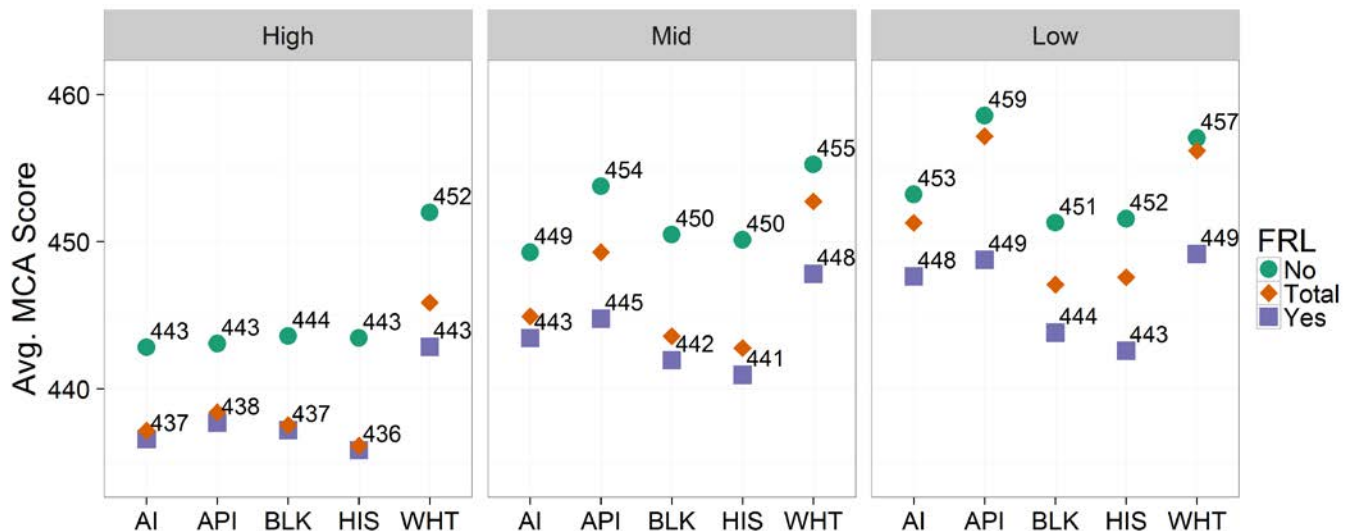
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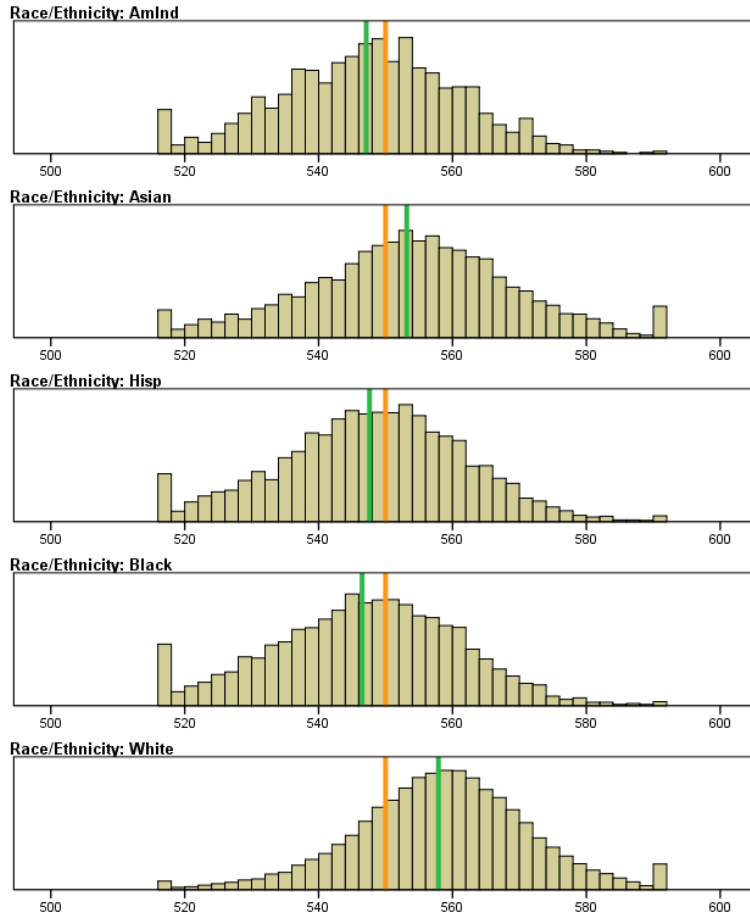
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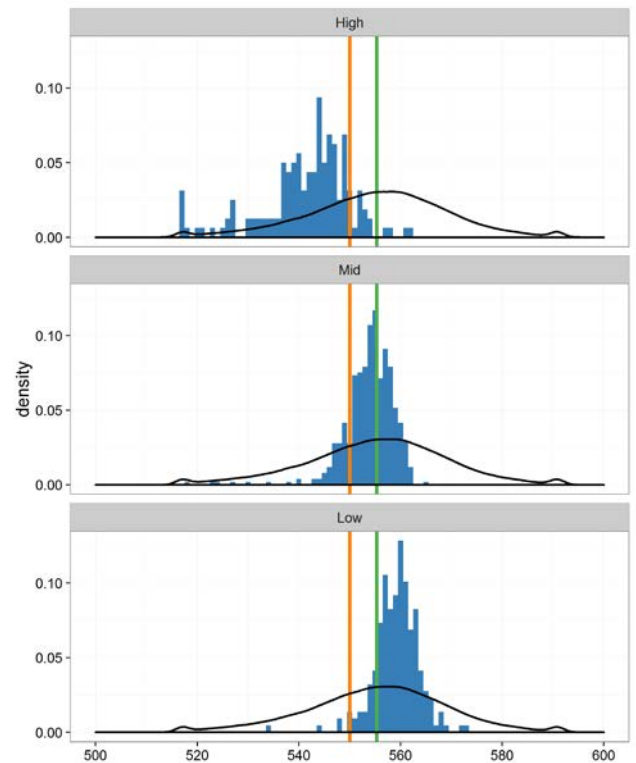
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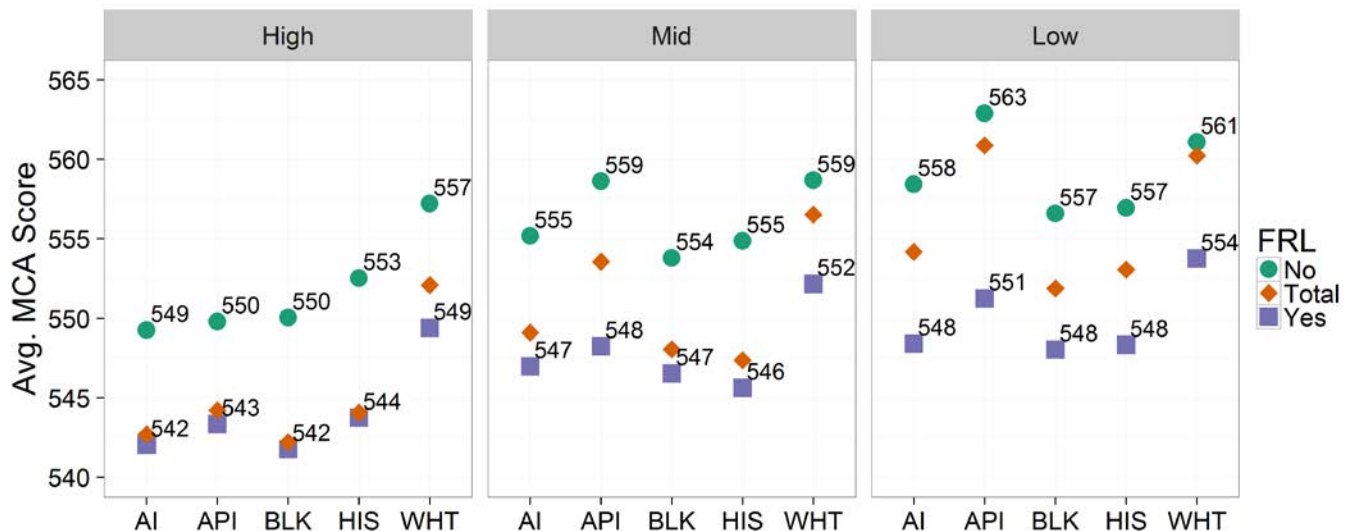
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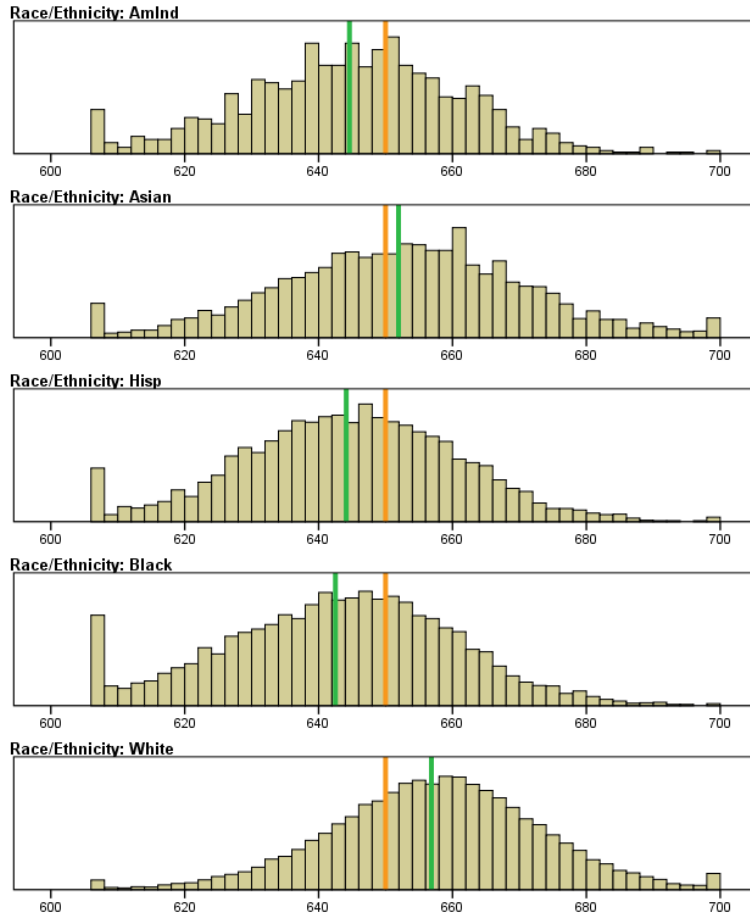
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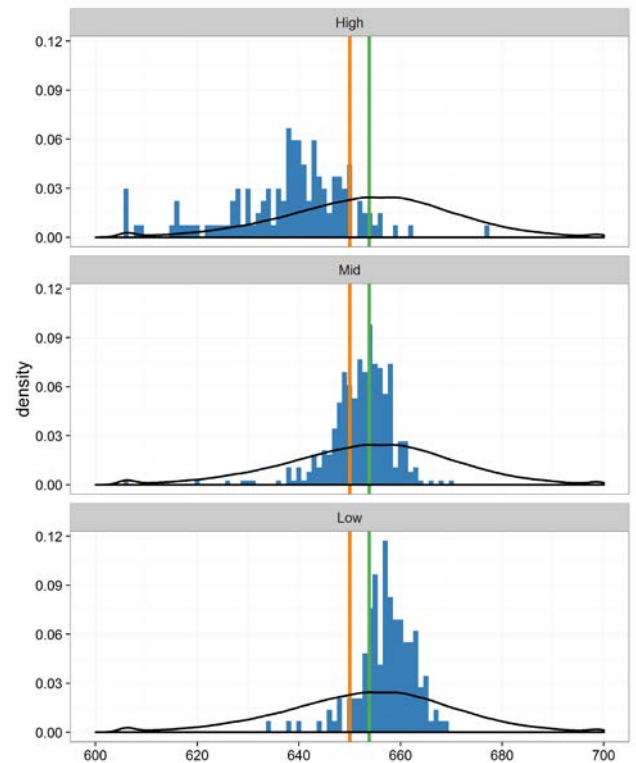
READING – GRADE 6 – 2014 MCA Score Distributions – Race & FRL

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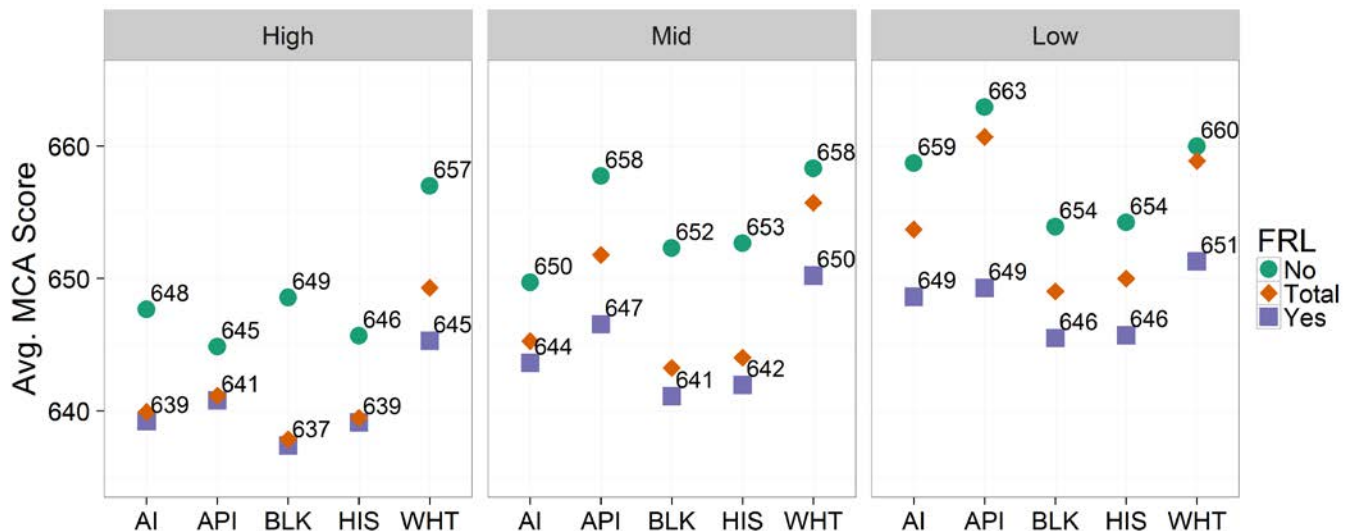
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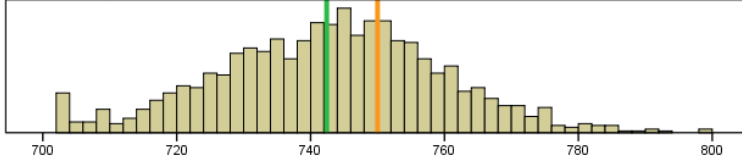


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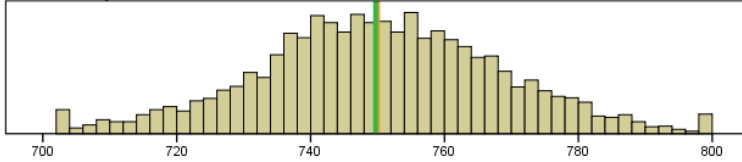
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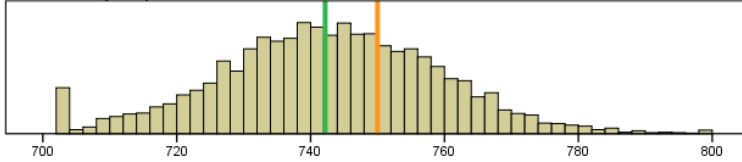
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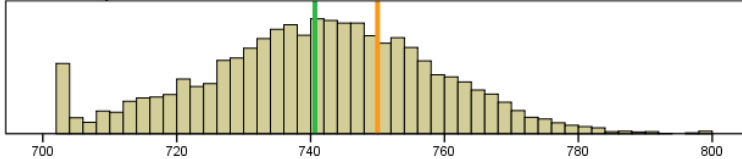
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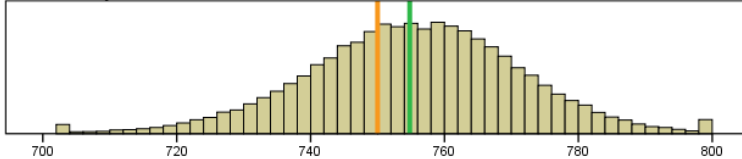
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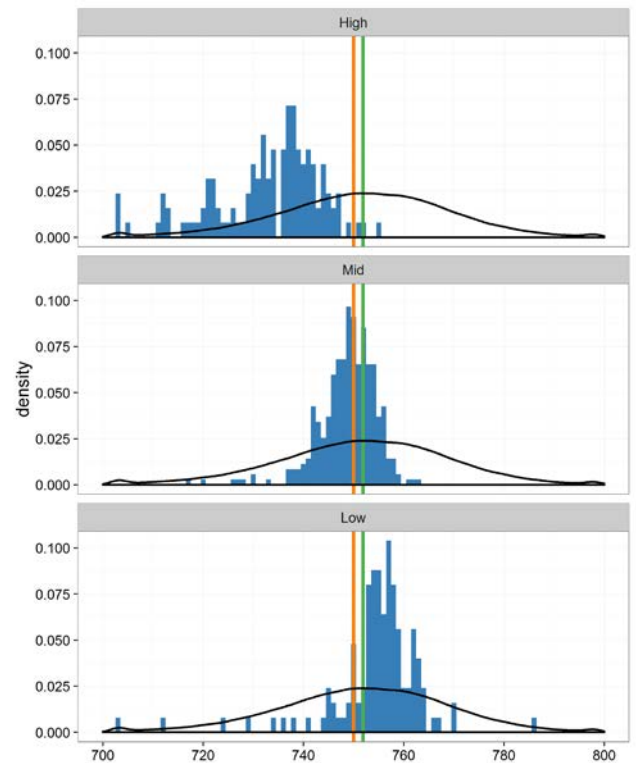


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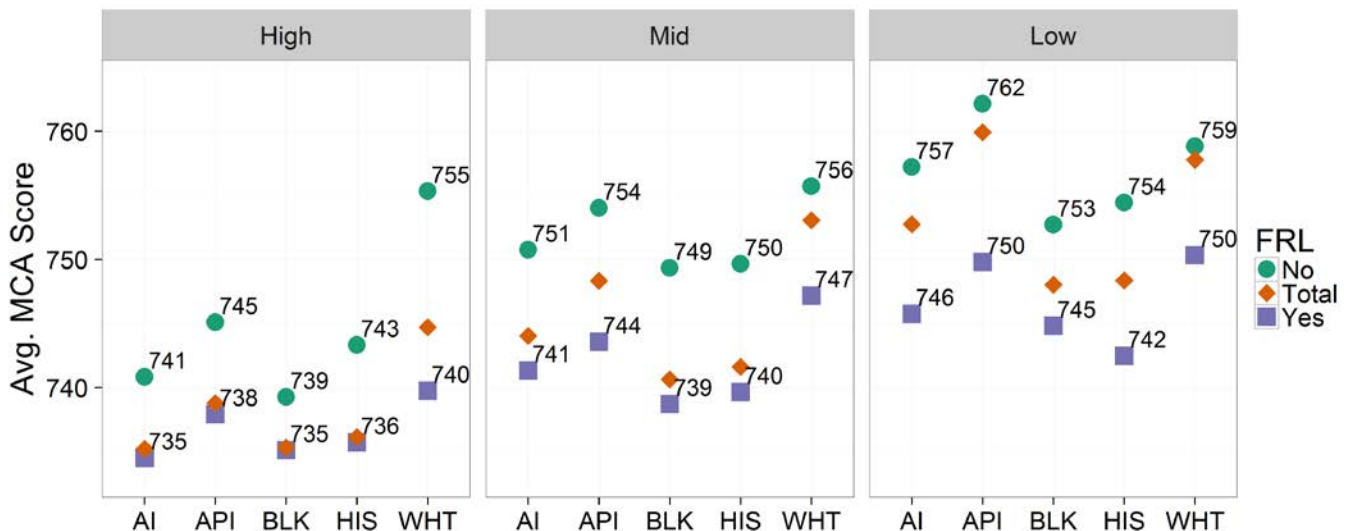
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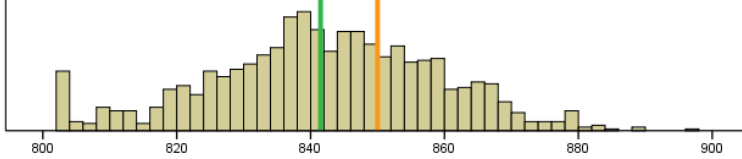


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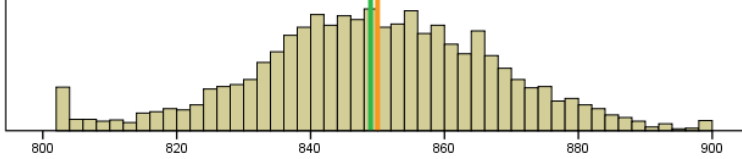
READING – GRADE 8 – 2014 MCA Score Distributions – Race & FRL

Student Score Distributions Vary by Race

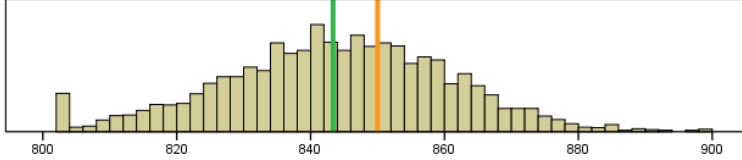
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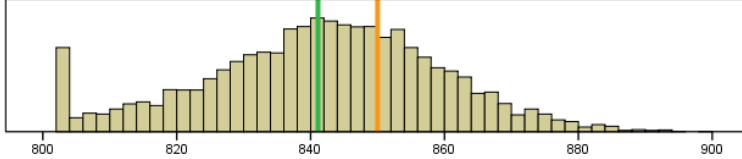
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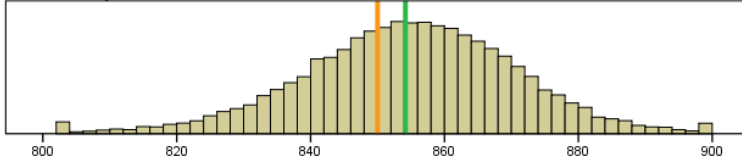
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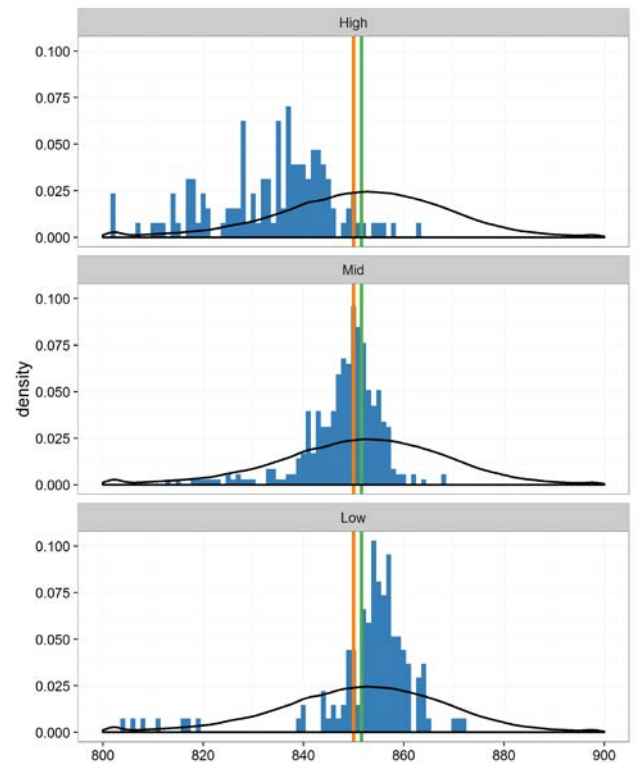


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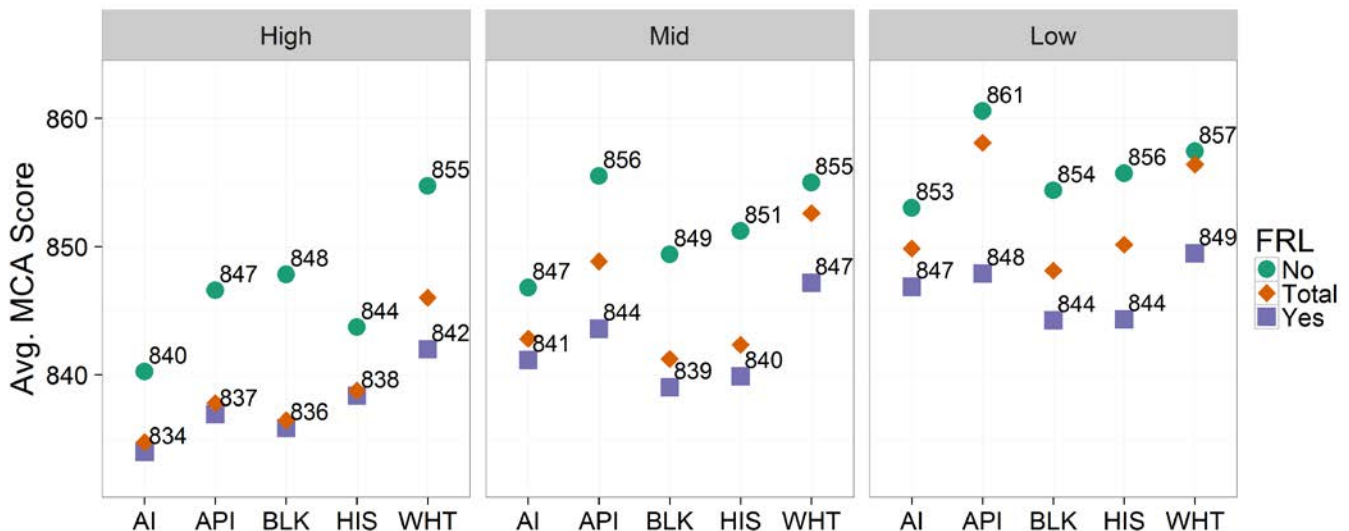
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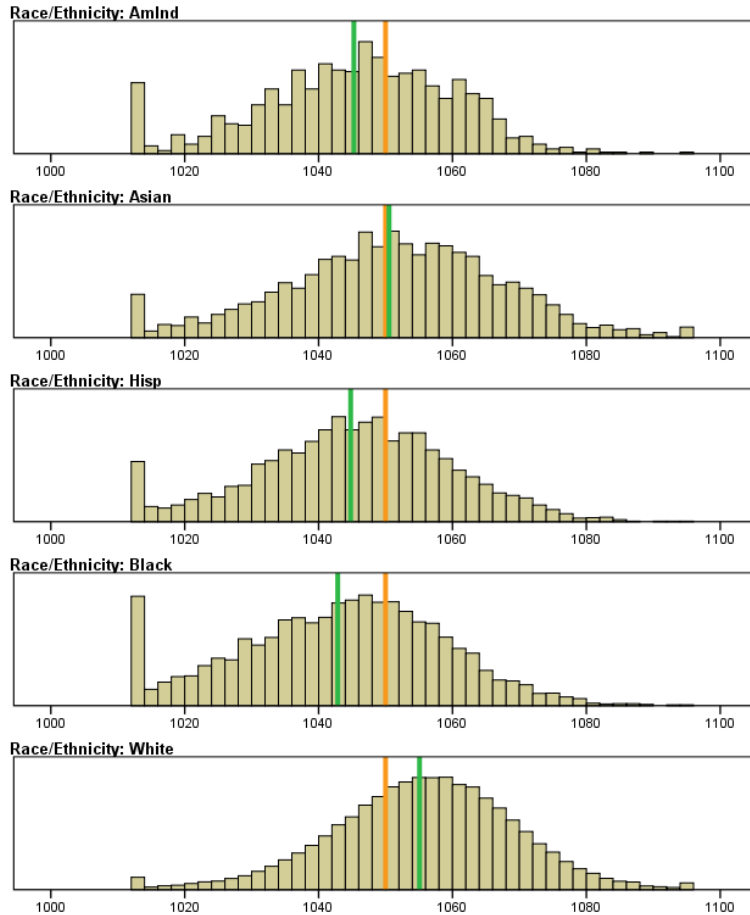
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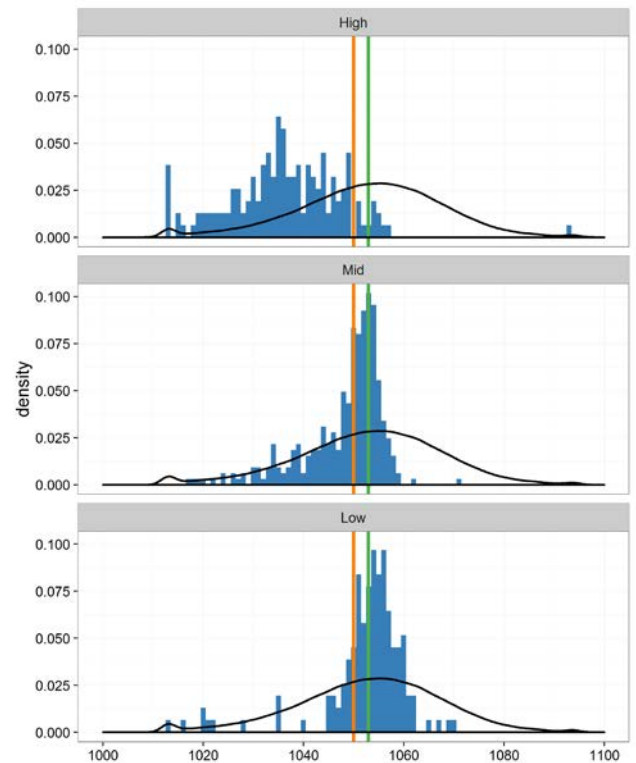
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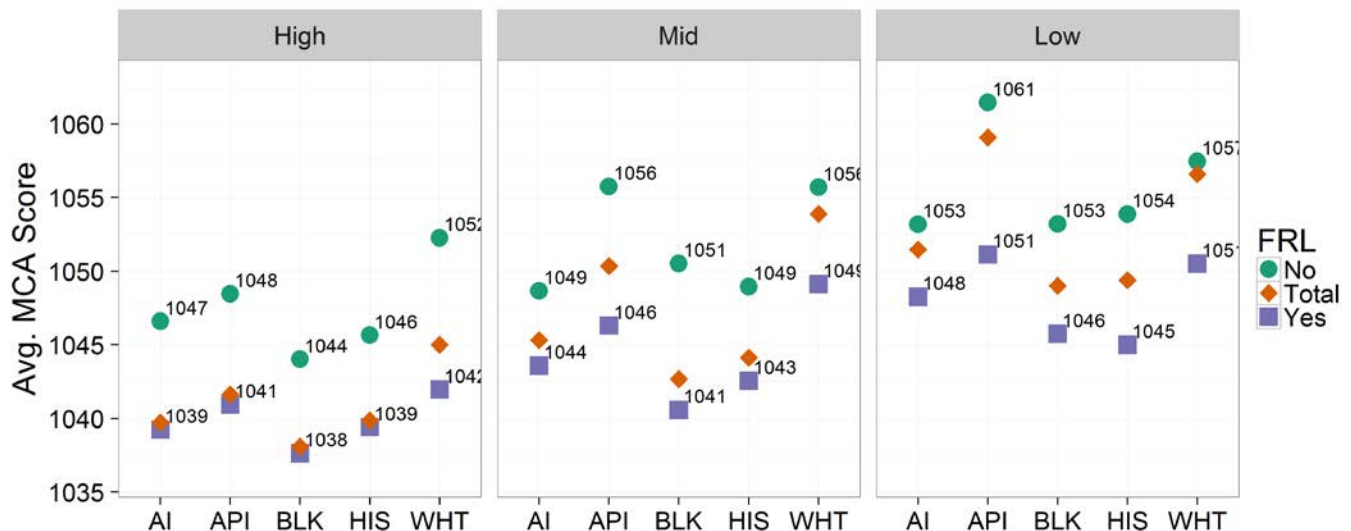
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Student Mean Scores Vary by School Poverty, Race, & FRL Status



- Mean Scores by Student Free/Reduced Lunch Status (Yes, No, Total average)
- Within High, Mid, & Low Poverty Schools