



Equity Metrics, Measures, and Analytic Approaches in Education Research

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MDRC’s Equity Collaborative researched ways that MDRC can more fully measure equity both as a condition and an outcome within studies that are focused on education. We reviewed literature about ways that other researchers, including some in other fields, have approached these questions. Our review suggests that most measures used in social inequity research—including both qualitative and quantitative measures—perform a descriptive function and primarily illustrate differences between groups. Key resources we identified for measuring equity in education settings include a 2019 National Academy of Sciences report, [Monitoring Educational Equity](#), and a 2018 UNESCO report, [Measuring Educational Equity in Education](#).

For ease of reference, Tables 1, 2, and 3 below summarize examples of equity metrics, data displays, and statistics, from these and select other sources. The metrics listed here are not exhaustive; these resources are a starting point. Researchers should consider whether and how to build these and other metrics, displays, and measures into their work; what data need to be collected to measure and report on them; and how they might be used in reporting. We recommend consulting the original source documents for explanations about how to define and use these measures.

It is important to note that standardized test scores are ubiquitous and relatively easy to access, and measuring achievement for different groups of students

is widespread in education research. Yet the use of “achievement gaps” as a framing for measuring differences between demographic groups can be problematic for at least two reasons:¹ First, measuring and reporting the gaps can implicitly or explicitly put the responsibility for performance on students themselves, while ignoring systemic or institutional factors that contribute to inequitable performance outcomes—for instance, disproportionate designations of special education and higher incidence of disciplinary actions against students of color. Second, when groups are constructed based on race and ethnicity, researchers often define performance by White students as the reference (or benchmark) category, implying that White performance is the standard by which other groups’ successes or failures should be measured. With these and other critiques in mind, we challenge researchers to consider carefully whether and how they report “achievement gaps” and to document the systemic conditions that students encounter.

Finally, while equity metrics provide ways to describe existing inequities, few have been used to study *outcomes* in randomized controlled trials or other impact studies. We will aim to shed light on how equity metrics can be used to understand the *impact* of an intervention or strategy on growing or narrowing inequities as we continue to think critically about equity in our work.

1 Ladson-Billings (2006); and see Milner (2013) for an overview.

Table 1: Some Metrics for Documenting Equity/Inequity in Education Research

Metric	Construct
Concentration of poverty in schools	Extent of racial/economic segregation
Racial segregation within and across schools	Extent of racial/economic segregation
Availability of licensed pre-K programs	Disparities in access to licensed pre-K
Participation in licensed pre-K	Disparities in access to licensed pre-K
Years of teacher experience	Disparities in access to effective teaching
Teacher credentials, certifications	Disparities in access to effective teaching
Racial/ethnic diversity of teaching staff	Disparities in access to effective teaching
Availability and enrollment in advanced, rigorous coursework	Disparities in access to rigorous coursework
Availability and enrollment in Advanced Placement/ International Baccalaureate and dual enrollment programs	Disparities in access to rigorous coursework
Availability and enrollment in gifted and talented programs	Disparities in access to rigorous coursework
Availability and enrollment in course work in the arts, social sciences, sciences, and technology	Disparities in curricular breadth
Access to and participation in tutoring or other academic supports	Disparities in access to high-quality academic supports
Perceptions of safety, academic supports, special education, and English Language Learners education	Disparities in school climate
Out-of-school suspensions and expulsions	Disparities in non-exclusionary discipline practices
Supports for emotional, behavioral, mental, and physical health	Disparities in nonacademic supports
Community cultural wealth	Survey scale drawing on Critical Race Theory to measure social condition and experience (aggregate measure of aspirational, familial, and navigational capital)
“Achievement gaps” (standardized tests, dropout rates, college entrance exams)	Difference in test scores between one or more groups (often defined by race, ethnicity, gender, or language)
Comparative measures of growth across members of different groups to understand why different groups have different growth trajectories	Difference in pre-test to post-test (or multiple measures) growth over time

Sources: Most metrics come from NASEM (2019), except for the last three, which are found in Sablan (2019), Reardon et al. (2015), and Quintana and Correnti (2020), respectively.

Table 2: Some Data Displays for Documenting Equity/Inequity in Education Research

Data Display	Description
Histogram	Can show the dispersion of inequalities
Cumulative distribution function	Can show the proportion of a population that met or did not meet a given benchmark
Lorenz curve	Can show the overall distribution of proportions of populations to meet or not meet benchmarks.

Source: UNESCO (2018)

Table 3: Some Statistics for Documenting Equity/Inequity in Education Research

Statistic	Description
Range	Numeric difference between highest and lowest values
Restricted range	Numeric difference between particular percentiles of a distribution (for example, between the 10th and 90th percentiles or between the 25th and 75th percentiles)
Palma ratio	Ratio between top and bottom of the distribution (for example, top 10 percent compared to bottom 50 percent)
Parity indices	Ratio of one group to another for a given outcome
Coefficient of variation	Standard deviation divided by the mean
Mean absolute deviation	Average deviation from the mean
Variance	Average squared deviation from the mean (standard deviation is the square root of this statistic)
Atkinson index	Cumulative inequality metric that determines if inequality is from the high or low end of distribution
Gini coefficient	Cumulative measure of the relationship between actual distribution and perfect equality in the outcome
McLoone index	Cumulative sum of the values below the median divided by the cumulative sum of the values as if they were at the median
Theil index	Cumulative, generalized entropy measure

Source: UNESCO (2018).

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