

N size – School Accountability

Proposal: For each identified ESSA student subgroup, Kentucky should use a minimum of 30 students for accountability indicators and measures, but continue to publicly report the performance results for subgroups numbering 10 to 29.

Rationale:

- Sample comment from KY psychometrician:
“N-size is based on the Central Limit Theorem. We have never seen the formulas behind the work that KDE conducts in terms of their hypothesis testing to see how they consider error in their analysis, but most all of us across the state agree for high stakes accountability a sample size of thirty (30) should be used. Ten (10) is used for FERPA so data are suppressed to prevent identification, but that should not be the same threshold for analysis.”
- Brookings Institution:
“A number of civil rights and education reform groups advocated for n-size of 10 in the ESSA accountability regulations... The Alliance for Excellent Education points to the 2010 report from IES’ National Center for Education Statistics (NCES) on state longitudinal data systems as support for choosing an optimal n-size of 10. The NCES report, however, **is about subgroup size for reporting purposes, not accountability**. It correspondingly focuses on privacy concerns, rather than ensuring statistical reliability for high stakes policy decisions, arguing that n-size of 10 protects student privacy. In practice, the n-size discussion is now about the range of n=10 to 30, so the real issue here is statistical reliability rather than privacy.

As sample size shrinks, the chances rise that a few individual children influence the school’s accountability rating—either positively or negatively—in a way that has nothing to do with how well the school serves students in that subgroup. And while accountability metrics that rely on gains are statistically preferable to proficiency ones, gains are even more subject to volatility when samples are small. Because real stakes are attached to these accountability ratings, states should tread carefully.”

- ESSA – State’s authority: ESSA establishes that states sets the minimum number of students in a subgroup for accountability. See below:

ESSA Section 1111(c)(3)

MINIMUM NUMBER OF STUDENTS .—Each State shall describe—

- “(A) with respect to any provisions under this part that require disaggregation of information by each subgroup of students—
 - “(i) the minimum number of students that the **State determines** are necessary to be included to carry out such requirements and how that number is statistically sound, which shall be the same State-determined number for all students and for each subgroup of students in the State;
 - “(ii) how such minimum number of students was **determined by the State**, including how the State collaborated with teachers, principals, other school leaders, parents, and other stakeholders when determining such minimum number; and
 - “(iii) how the **State ensures that such minimum number is sufficient to Not reveal any personally identifiable information.**

- INDIANA: excerpts and rationale from ESSA plan (n-size = 30)

“Under the ESEA waiver, Indiana established multiple minimum numbers dependent on the accountability indicator. Specifically, **a minimum number of 30 was established for proficiency determinations**; a minimum number of 10 was established for graduation rate and college- and career- readiness determinations; and a minimum number of 40 was established for growth determinations.”

“Though more schools’ subgroups would be included with a lower minimum N, the smaller N-size would have an impact on the reliability of the data. Small N-sizes are more susceptible to the volatility of the data distribution.”

“As stated in the “Best Practices for Determining Subgroup Size in Accountability Systems While Protecting Personally Identifiable Student Information,” written by the Institute for Educational Statistics (IES) in January of 2017, a lower N-size may enable more complete data to be reported, but may also affect the reliability and statistical validity of the data.”

- TENNESSEE excerpts and rationale from ESSA plan (n-size = 30)

“For **accountability measures, Tennessee will continue to use the minimum n-size of 30** students; however, for reporting purposes, Tennessee will reduce n-size to 10 students. These metrics will be disaggregated by Tennessee’s accountability subgroups, and, when available and applicable, these metrics will be disaggregated by all subgroups under ESSA.”

“For transparency purposes, Tennessee will be reporting at the level of individual racial and ethnic groups and lowering the n-size to 10 for the purposes of reporting. The state report card will include the progress of all subgroups, including each racial/ethnic subgroup, and data will be disaggregated including progress against subgroup AMO targets. We believe this addresses any concern that the performance of an individual racial or ethnic group could be masked by the performance of another in the aggregated group.”

- NORTH CAROLINA: excerpts and rationale from ESSA plan (n-size = 30)

“North Carolina will continue to require a **minimum N-size of 30** students for any provision under Title I, Part A of the ESSA that requires disaggregation of information by each subgroup of students for accountability purposes, including annual meaningful differentiation and identification of schools.”

“In an analysis of the impact of the minimum number of students required for inclusion in the accountability model or required for reporting a subgroup for long-term goals, the NCDPI found that requiring at least 30 students had a positive impact on the number of included schools and the number of included students. Though more schools’ subgroups would be included with a lower minimum N, the smaller N-size would have an impact on the reliability of the data. Small N-sizes are more susceptible to the volatility of the data distribution.”

“As stated in the “Best Practices for Determining Subgroup Size in Accountability Systems While Protecting Personally Identifiable Student Information,” written by the Institute for Educational Statistics (IES) in January of 2017, a lower N-size may enable more complete data to be reported, but may also affect the reliability and statistical validity of the data.”

Proposed amendment to SB 158:

- (d) 1. The Kentucky Department of Education shall develop an online display of the accountability system results, hereinafter called a "dashboard." A color-coded performance level for each state indicator shall be displayed in a straightforward manner on the dashboard for overall performance, status, and change by district and school for all students as a group and separately for individual subgroups containing at least thirty (30) students.**
- 2. Performance data for each subgroup of ten (10) to twenty-nine (29) students in a school shall be reported on the school report card under Section 6 of this Act but shall not be included in determining the school's accountability system performance.**