

Illinois K-2 Workgroup Indicator Discussion Guide Teacher/Student Ratio and Class Size

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Indicator Summary

Young children need extensive supervision and individual attention in order to stay safe and learn at their best.ⁱ For this reason, state and district policymakers often encourage or mandate smaller class sizes and lower student-teacher ratios in early childhood and elementary grades. Class size can be an indicator of both access to learning resources and school climate. Illinois is not among the 34 states that specify a maximum student-teacher ratio in policy.ⁱⁱ The National Association for the Education of Young Children (NAEYC) recommends a 1:10 adult-child ratio in Pre-K, and a 1:12 ratio in Kindergarten,ⁱⁱⁱ while the National Institute for Early Education Research (NIEER) quality benchmarks for Pre-K specify a 1:10 adult/child ratio and a maximum class size of 20.^{iv} NAEYC, state policies, and general education consensus recommend a maximum class size of 24 for young children.

- Average Illinois elementary student/teacher ratios are 19:1 statewide, 24:1 in Chicago
- Average K-2 class size is 20-22 statewide, and 23-26 in Chicago
- Illinois law mandates a 10:1 child to adult for 3-4 year olds and a 20:1 child to adult ratio for children 5 and up in licensed child care centers

The gold-standard evidence supporting small class sizes and low student-teacher ratios in early grades comes from the Tennessee STAR study in the late 1980s. Elementary school students randomly assigned to much smaller classes outperformed their classmates in test scores and had lower discipline rates. Students who often perform less well than their peers in school saw the most benefits: black students, economically disadvantaged students, students in urban schools, and boys.^v Subsequent long-term analyses of that data showed students assigned to smaller classes in Kindergarten had higher adult earnings, higher college attendance rates, and other positive long-term outcomes.^{vi} Experimental education studies on the scale of TN STAR are rare, but most subsequent quasi-experimental studies on class size since have found less dramatic positive effects or mixed effects. Evidence in support of class size reduction is much weaker for older students.^{vii}

While smaller classes and lower student-teacher ratios are generally a positive factor for young students' learning, there are other important factors to consider. Class sizes in the Tennessee STAR study shrunk from 23 to 15 students – a 35 percent reduction. Making this sort of change would result in significant new costs for staff and facilities, though some argue the expenditure would return a substantial reduction in achievement gaps and prevent more costly interventions later in school and life. It is not clear from the research, however, that smaller changes in class size, for example from 24 to 22 students, would have significant results for student achievement or long-term benefits.

Staffing models and school models also affect the interpretation of individual instances of class sizes and ratios. For example, Montessori classrooms have larger numbers of students, but

more teachers, resulting in larger group sizes but similar student-teacher ratios; and schools serving high numbers of special education students might have low average class sizes, but not see a strong relationship between class size and achievement or discipline. Some researchers have argued that schools should actually increase class sizes and salaries for the most effective teachers, so more students can have access to the best teachers, without new hiring.^{viii} Other conditions of learning such as co-teaching models, classroom aides, teacher quality, teaching strategies, and the needs of students can all impact the effects of class size on achievement and environment.

Measurement Options and ESSA Alignment

There are several potential metrics for this indicator, including student-teacher ratio, student-adult ratio, and average or median class size. These could also be combined into different metrics or goals – for example, a tiered rating that awards points for classes at or below the evidence-based TN STAR ratio of 15:1 and deducts points for classes over a maximum cutoff, such as 30:1. Or, a gap closure goal that aims to get outlier districts, like Chicago, closer to the state average. The rating could also be weighted to favor smaller classes for at-risk students. Below, we examine whether these metrics would meet ESSA requirements^{ix} for school quality ratings. Metrics are considered together as they share similar attributes.

- **Valid and Reliable:** Maybe.
 - There is strong evidence linking small class size and low ratios to student outcomes in early grades, but we do not know based on available evidence exactly how much change makes a difference in student learning outcomes, or where the maximum cutoff should be.
 - These metrics are also strongly correlated to district and school budgets, and are more within the district and state’s control to change than the individual school’s control.
- **Meaningfully Differentiated:** Unknown.
 - Further analysis is needed on the range of class sizes and ratios in Illinois schools. Based on averages above, the range of ratios and class sizes in early grades among most Illinois schools could be fairly narrow, but a tiered rating of class size as described above might be a meaningful differentiator.
- **Comparable:** Yes.
 - These metrics could be compared statewide, and are already collected and reported on Illinois’ state report cards. But, interpretations of quality for individual schools could depend on curriculum and staffing models.
- **Reportable Annually and by Subgroup:** Yes.
 - These metrics can be reported annually, and can be disaggregated by subgroup (e.g. average student-teacher ratio experienced by black students in K-2 grades at a school).
 - Population sizes for subgroups at the school and grade level could be quite small.
- **Additional Considerations:** Putting school-level accountability stakes on class size or staffing ratios for schools without appropriate safeguards could create bad incentives or inequitable results. Ratings are very likely to disproportionately reward schools in wealthy districts. Additionally, in the absence of additional budgetary resources, a school might favor more small exclusionary classes for special education students in order to keep averages

down, unless calculations accounted for outliers. Or, if class size is used as a quality metric without regard for staffing ratios, it might discourage co-teaching models.

Use Case Examples

As previously mentioned, many states mandate or encourage smaller class sizes, especially in early grades, via caps, maximums, or budgets.^x For example, California’s new state funding system allocates additional funds to districts that maintain average class sizes below 24 in K-3 grades.^{xi} Most states publicly report class sizes and student-teacher ratios, similar to Illinois’ current system. But, none of the currently submitted state ESSA plans includes a measure of class size or student-teacher ratios in their quality ratings. Some states, however, mention reducing class size as an approved school improvement strategy, rather than a quality indicator. Tennessee is one example.

Pros/Cons of Using This Indicator in K-2 Accountability Ratings

Pros	Cons
<ul style="list-style-type: none"> • Evidence of short- and long-term academic impact for young students • Disproportionately beneficial to students at-risk and young students • Broad consensus that in most cases smaller class sizes are preferable for instruction and student safety • Reflects access to resources and school climate • Data readily available 	<ul style="list-style-type: none"> • Strongly correlated with district budgets – school ratings would favor wealthy schools and districts • Not clearly actionable at the school level without extensive additional resources for staff and facilities • Evidence unclear as to the impact of class size changes within normal ranges (e.g. more than 15 and less than 25) • Depending on metrics, may have unintended consequences for non-traditional staffing models or inclusion • May not meet ESSA validity and differentiation standards • Can be encouraged or mandated via other state policies

ⁱ Jack P. Shonkoff and Deborah A. Phillips (Eds.), *From Neurons to Neighborhoods: The Science of Early Childhood Development* (DC: National Academies Press, 2000).

ⁱⁱ Education Commission of the States, “50 State Comparison, Teacher:Student Ratios,” 2014.

ⁱⁱⁱ National Association for the Education of Young Children, “Teacher-Child Ratios within Group Size,” 2008.

^{iv} National Institute for Early Education Research (NIEER), “The State of Preschool 2016,” Rutgers University.

^v Alan B. Krueger and Diana Whitmore Schanzenbach, “The Effect of Attending a Small Class in the Early Grades on College-test Taking and Middle School Test Results: Evidence from Project STAR,” *The Economic Journal* 111, no. 468 (1999).

^{vi} Raj Chetty et. al., “How does your Kindergarten Classroom Affect Your Earnings? Evidence from Project STAR,” *The Quarterly Journal of Economics* 126, no.4 (2011), Diane Whitmore Schanzenbach, “Does Class Size Matter?” *National Education Policy Center*, 2014.

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- vii Matthew M. Chingos and Grover J. “Russ” Whitehurst, “Class Size: What Research Says and What It Means for State Policy,” *The Brookings Institution*, 2011.
- viii Marguerite Roza and Amanda Warco, “Paying the Best Teachers More to Teach More Students,” *Georgetown University Edunomics Lab*, 2015.
- ix Erika Hall, “[Identifying a School Quality/Student Success Indicator for ESSA: Requirements and Considerations](#),” *Council of Chief State School Officers*, January 2017.
- x Kyle Zinth, “Maximum P-12 Class-Size Policies,” *Education Commission of the States*, 2009.
- xi Lillian Mongeau, “New Funding Formula Revives Push for Smaller Class Sizes,” *Ed Source*, October, 2013.