Defining and Measuring Progress in Improving Low-Performing Schools

TN EDUCATION RESEARCH ALLIANCE

A Policy Brief on Driving Improvement in Low-Performing Schools *August 2018*

J. Edward Guthrie

Introduction

With Tennessee's "First to the Top" plan in 2010, the state became one of the earliest adopters of the U.S. Department of Education's vision for state-supported school turnaround. That vision, based on identifying at least five percent of schools for turnaround intervention, is now codified in federal law for every state under the *Every Student Succeeds Act (ESSA)*. While the five percent requirement ensures that no state can ignore schools in greatest need of support, each state is then on its own to define goals for reducing the scope or severity of its challenge with regard to low-performing schools. Yet defining the goal and purpose of turnaround work is a crucial first step in the development of a turnaround program, and one that states likely miss if they merely identify a bottom five percent of schools and skip directly to designing interventions. Not only does a clearly articulated goal for turnaround define how to measure progress, it also affects practice. The goal suggests which schools to prioritize, what the nature of interventions should be, and how the state should communicate to districts, schools, students, parents, and communities about why such interventions are necessary.

This brief lays out a framework for defining turnaround goals, offers progress measures consistent with each potential goal, and considers Tennessee's progress from 2012 through 2017 under each progress measure.

In Tennessee, stakeholders often ask whether the state's turnaround efforts since 2010 have "worked." We attempt to answer that question in this brief, but we first provide a framework of potential motivating rationales for engaging in turnaround work. We name three potential motivations for turnaround: excellence, equity, and efficiency. Each of these motivations comes with distinct definitions of "low-performing" and measures of progress. Then, under each rationale, we examine Tennessee's progress in driving improvement in low-performing schools since 2010, a time during which the Tennessee Department of Education enacted a series of reform programs to turn around the state's most chronically underperforming schools. Separate from the question of how those interventions affected the performance of specific schools, we ask how Tennessee's efforts have changed the overall picture of school performance statewide and, most importantly, whether the state's lowest-performing schools are a less troubling part of that statewide picture now than before.

Depending on how we define the goal of our turnaround efforts, not only does the estimated amount of progress change, but so too do the implications in terms of which schools turnaround efforts should target and the nature of reforms to enact.

We name three potential motivations for turnaround: excellence, equity, and efficiency. Each of these motivations comes with distinct definitions of "low-performing" and measures of progress.

To preview, we find:

1. ***The number of schools falling below an absolute threshold for low-performance fluctuates with changes in assessments or assessment standards. However, we see progress in reducing the number of schools below 20 percent proficient during the period of stability in assessments.***
2. ***The size of the gap between the performance of the lowest-performing schools and the rest of the state has stayed relatively constant.***
3. ***Non-proficient students in Tennessee are disproportionately concentrated in a shrinking proportion of schools.***

Taking out fluctuations from assessment changes, all three findings are consistent with a pattern of steady, widespread school improvement in Tennessee—a rising tide lifting all boats: As even the lowest-performing schools improve, fewer fall below a set performance threshold. Higher-performing and mid-performing schools also improve, leaving the gaps between high- and low-performing schools unchanged. Finally, as statewide proficiency increases, we see the remaining non-proficiency concentrated in fewer locations. While keeping up is better than falling further behind, sharing equally in statewide improvement may be insufficient for those who see the goal of school turnaround as closing the performance gap between lowest-performing schools and the rest of the state. For this reason, in addition to encouraging Tennessee to track broader measures of turnaround progress, we also argue that clarifying the rationale and goals for turnaround efforts is necessary to define and interpret those progress measures.

HOW DOES THIS ANALYSIS DIFFER FROM WHAT HAS ALREADY BEEN FOUND?

Previous briefs as well as upcoming work from the Tennessee Education Research Alliance (TERA) rigorously evaluate whether students in the Achievement School District (ASD) and district-level Innovation Zones (iZones) have performed above what we could have expected in the absence of such interventions (Guthrie, 2017; Pham, Henry, Zimmer, & Kho, 2018; Zimmer, Henry, & Kho, 2017; Zimmer, Kho, Henry, & Viano, 2015).

These studies give us information on how well particular interventions work for those who receive them. At the same time, it is also important to know if conditions are improving in the larger population. To use an analogy, a job-training program may be one strategy for reducing unemployment for a population. While we would evaluate a job-training program in part by considering whether the people it serves find work, it would also be important to continue to track the local unemployment rate to determine whether the program is helping address the problem it was created to solve. If an intervention is successful for those it serves, but conditions do not improve in the larger population, the intervention may need to expand or be further enhanced. That is, the effectiveness of a solution can be a separate question from the size of the problem it seeks to solve. Policy should consider both.

While prior and ongoing TERA research evaluates the effectiveness of Tennessee's low-performing schools strategies in improving outcomes for students in the schools served, this brief assesses whether we observe progress in reducing the size of the problem these strategies target.

MOTIVATING RATIONALES FOR SCHOOL TURNAROUND

There are multiple reasons, or motivating rationales, that could lead policymakers to view identifying and intervening in the lowest-performing schools as an effective, or even necessary, strategy. However, different rationales point to different ideas of what the interventions and progress should look like. Before we examine whether Tennessee has made progress among the lowest-performing schools over the last several years, we first provide definitions of progress under three distinct motivating rationales for school turnaround turnaround - excellence, equity, and efficiency.

Excellence

First, from an excellence perspective, a state may have a minimum performance threshold below which it believes intervention is necessary to establish basic educational functions within a school. This provides an intuitive definition of "low-performing," as it becomes independent of the performance of any other school. Instead, the need for intervention is defined by a level of underperformance or organizational dysfunction requiring immediate, intensive support. By visiting the school or reviewing the right data, a trained observer could diagnose or confirm a school's status as "low-performing" without making comparisons to other schools. In this view, measuring progress for a state turnaround program is as simple as reducing the number of schools falling below the designated threshold.

Equity

Alternatively, a state may view the need for turnaround in terms of equity. Rather than setting an absolute threshold, this approach uses performance relative to other schools in the state to determine which, if any, schools need special attention or intervention because they lag too far behind other schools in the state. From this equity perspective, we may define progress as a reduction in the gap between the lowest-performing schools and a comparison of either typical or high-performing schools, similar to the measurement of achievement gaps between groups of students. Under this rationale, interventions are a competitive advantage to help the schools furthest behind, but not necessarily a sign of inherent problems in performance or organizational functioning. When Tennessee identified its lowest-performing 83 schools

as "Priority Schools" in the fall of 2012, the state's department of education explained that they intended their interventions to address the need for those students (and schools) furthest behind to grow at a faster rate. This statement aligns with an equity view of school turnaround and points to measuring progress as improvements in lowest-performing schools that outpace statewide improvement.

Efficiency

Finally, intervening in the lowest-performing schools can be an efficient way to address issues that go beyond those specific schools. Given limited resources to improve student outcomes statewide, concentrating those resources in the schools with the most room for improvement can be a sensible strategy. In their work on "dropout factories," Balfanz and Legters (2004) made this conceptualization explicit by noting that the majority of high-school dropouts come from a small proportion of high schools; efforts to improve the national graduation rate, they argued, must focus on those schools. The efficiency perspective is most consistent with the practice of continually identifying and intervening in a set number of schools regardless of performance or improvement, though successful interventions could show progress by contributing to improvement in statewide performance measures or by reducing the extent to which remaining underperformance is concentrated in relatively few schools.

There are several reasons for policymakers to believe turnaround interventions are necessary. However, the specific reason, or motivating rationale, behind a turnaround program leads to different definitions of the problem the program intends to solve and how we measure its progress.

PERSPECTIVE	PROBLEM DEFINITION	PROGRESS MEASURE
EXCELLENCE	**"Low Performance" is inherent.** Targeted schools may require intensive interventions to establish or restore basic functioning.	Fewer schools falling below an absolute performance benchmark.
EQUITY	**"Low Performance" is relative.** Targeted schools need more of what works in order to close the gap.	Smaller gap between low-performing and rest of state, or Fewer schools far below state median.
EFFICIENCY	**"Low Performance" is a sign of opportunity, not pathology.** Targeted schools are the best places to invest limited resources, with the kinds of supports that would help any school.	Less concentration of under-performance in a small number of schools, or Less proportion of under-performing students in schools below fifth percentile.

The motivating rationale for turnaround also changes the way we talk about the purpose of the interventions, how we select schools, and how we assess progress. Aligning all of these narratives with the motivating rationale creates cohesive and consistent messaging around the turnaround program. For example, selecting a set number of schools for turnaround intervention is consistent with the Efficiency rationale. To stay consistent with this rationale, the narrative around the selected schools would then focus on their potential for improvement rather than their performance as inherently unacceptable or their students as too far behind those in other schools. Mixing definitions of the problem from one rationale with explanations for the intervention or school selection criteria from another rationale compromises the coherence of the turnaround program and creates conflicting messages for schools and districts.

PERSPECTIVE	HOW STATES MIGHT DESCRIBE THE NEED FOR INTERVENTION
EXCELLENCE	*"By any standard, these schools are not producing adequate results. Where local districts cannot demonstrate the ability ensure basic educational functioning in schools, the state will continue to intervene."*
EQUITY	*"While we have made progress as a state, not all schools are enjoying that success equally. Students in our lowest-performing schools are too far behind their peers in the rest of the state."*
EFFICIENCY	*"Half of all students scoring basic or below-basic are concentrated in just 20 percent of our schools. Given limited resources, we have the most potential to improve student outcomes in these schools."*

PERSPECTIVE	HOW STATES MIGHT DESCRIBE PROGRESS
EXCELLENCE	*"We have reduced the number schools below 20 percent proficient from 130 to just 33. We believe we can raise all schools above this benchmark within three years."*
EQUITY	*"We have reduced the number of schools 30 points below the median from 57 to 31. "*
EFFICIENCY	*"The proportion of non-proficient students who are in 'low-performing' schools has fallen from 25 percent to 7 percent."*

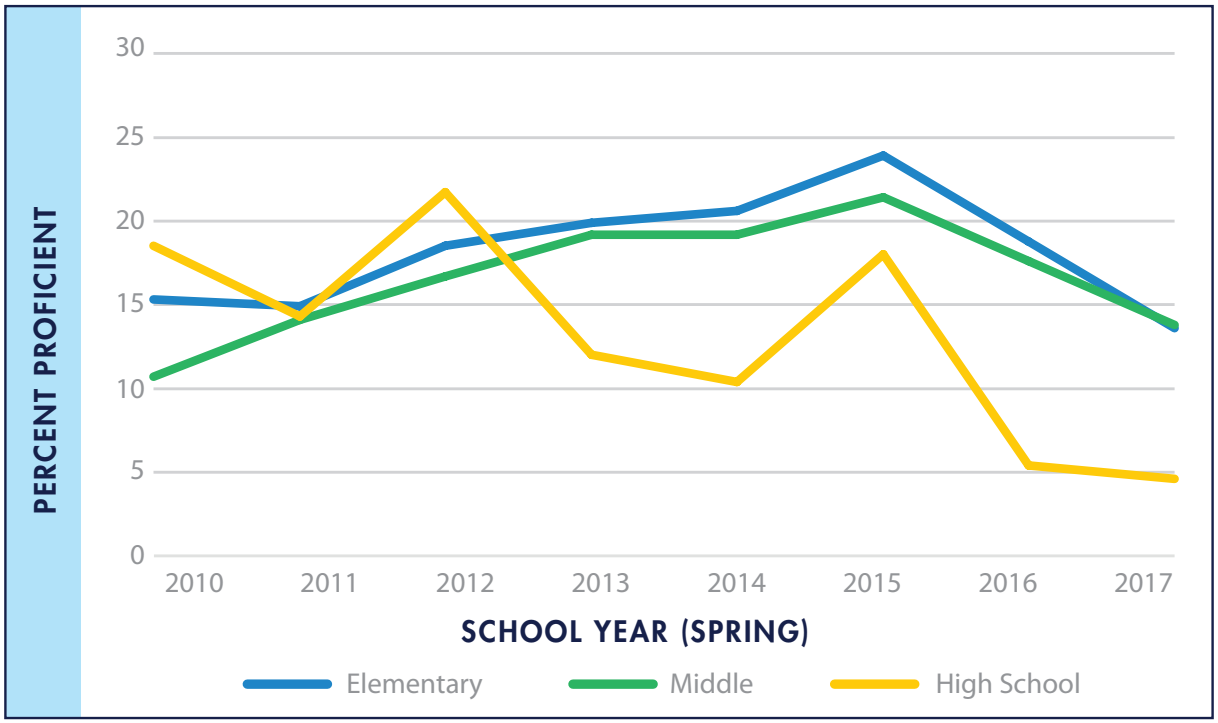
Applying the three motivations for state turnaround efforts described on the previous two pages, this brief asks whether Tennessee demonstrated the progress we would hope to observe under each view from the years leading into the release of the first Priority Schools list through the 2016-17 school year (SY2017).

EXCELLENCE

How does the performance of the lowest-performing schools in Tennessee in recent years compare to the performance of the lowest-performing schools from the 2011-12 school year when turnaround efforts began?

Here we consider whether the slate of reforms enacted during the era of Tennessee's First to the Top grant have raised the floor of school performance. In absolute terms, has the meaning of "lowest-performing" changed for Tennessee schools? Because the state uses the fifth percentile as the threshold for Priority School status, we answer this question by tracking the proficiency rate of schools falling at the fifth percentile every year. An increase in the proficiency rate associated with the fifth percentile would indicate improvement in the performance of Tennessee's lowest-performing schools.

RAISING THE FLOOR: The Threshold for Elementary and Middle Schools Increased Incrementally from 2010 to 2015



As shown in the figure above, the proficiency rate of both elementary and middle schools at the fifth percentile increased steadily from SY2010 through SY2015, after which Tennessee transitioned testing from the Tennessee Comprehensive Assessment Program (TCAP) to TNReady. Over the period from SY2010 to SY2015, the threshold for both elementary and middle schools increased steadily. By this measure, between 2010 and 2015, the state was making clear, incremental progress in raising the floor of performance for both elementary and middle schools.[1]

From SY2015 to SY2017, the fifth-percentile threshold fell precipitously across all three levels of schooling as the state transitioned from TCAP to the more rigorous TNReady assessments. Because the drops in the proficiency rates at the fifth-percentile from SY2015 to SY2017 match the drops in statewide proficiency rates under TNReady, it is difficult to infer anything about the success of the state's turnaround efforts over the past two years using this metric. State proficiency rates went down, and the proficiency rates in low-performing schools went down with them. Indeed, the sensitivity of proficiency rates to changes in either tests or standards is an inherent weakness of these measures as a sole measure of progress over time.

Despite the recent downturn in the fifth-percentile under TNReady, the final five years of TCAP tests set an example of what progress could look like in the next five years, and replicating that ten percentage-point increase in the fifth percentile of school proficiency rates by 2022 may be a worthy goal for the state.

While it is encouraging to see the fifth-percentile threshold increase over time, there is little context for interpreting this growth without tracking it against the rest of the state (which this brief does in a later section). Further, any future goal for the fifth percentile could be used immediately, instead, as a fixed threshold for defining low performance. The more straightforward goal would then be to move all schools above that mark, rather than just 95 percent of them. In the following paragraphs, we consider whether the lowest-performing schools in Tennessee have improved by defining improvement relative to a fixed threshold.

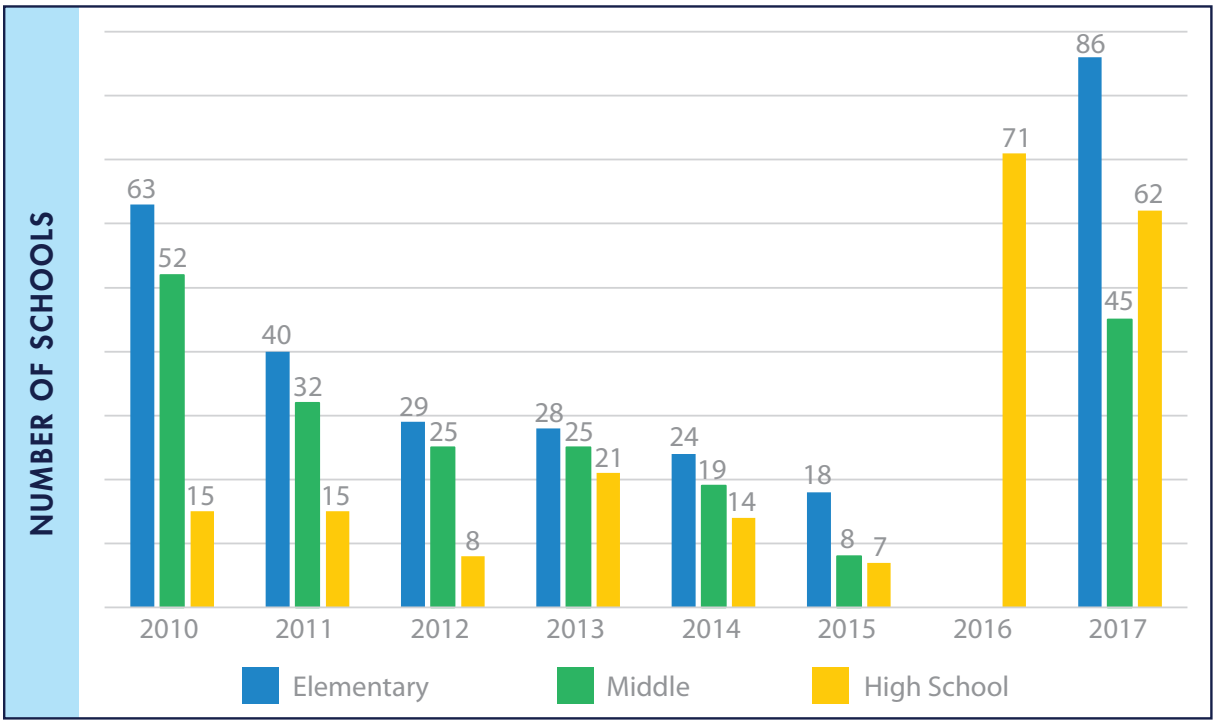
---

[1] *The trend of the fifth percentile of high school proficiency rates is both less consistent and less encouraging, following an up-and-down pattern in which the dips ultimately overcome the ups.*

Are fewer schools falling below the 2012 low-performing threshold?

Because Tennessee defined its lowest-performing schools in 2012 as schools falling in the lowest five percent of performance, the proficiency rate at the fifth percentile from that year provides a de facto definition of low-performing. We can use that definition to track progress in the number of schools every year going forward that meet the 2012 definition of low-performing. In 2012, "low-performing" roughly corresponded to schools with less than 20 percent of students proficient.[2] Using this threshold, we can track the number of low-performing schools over time to measure Tennessee's progress in driving improvements in low-performing schools.

Tennessee Saw Fewer Schools Below 20 Percent Proficient from 2010-2015



In the first year of new TCAP standards, SY2010, 63 elementary schools, 52 middle schools, and 15 high schools saw proficiency rates below 20 percent. Over the next five years (through SY2015), these numbers declined steadily. Overall, from SY2010 to SY2015, the total number of schools below 20 percent proficient on TCAP dropped by 75 percent from 130 schools to 33 schools. Notably, almost half of this reduction came in the first year, with more modest progress from there.

Along with declines in proficiency rates, there was a corresponding uptick in the number of schools below 20 percent proficient with the change from TCAP to TNReady. However, in the three years from SY2012 to SY2015, which were the first years of both the iZone and ASD, as well as the final years of TCAP testing, the state saw the number of schools below 20 percent proficient cut by almost half. As with the positive movement of the fifth-percentile threshold, the last five years of TCAP testing provide an example of progress that the state might try to replicate under TNReady. Similar progress could mean either returning to SY2015 numbers of schools below 20 percent, or matching the percentage drop seen from SY2010 through SY2015 by cutting down to 25 or fewer elementary schools, 6 or fewer middle schools, and 30 or fewer high schools by 2022.

While reducing the number of schools meeting a set definition of low-performance creates a clear, concrete goal, fluctuations in overall proficiency rates from new tests or standards make it difficult to track progress, as changes in the measure do not always result from changes in school performance. This is the challenge with using direct, absolute levels of proficiency to measure school performance over time or assess progress in improving low-performing schools. The following section considers comparative measures instead, and how such measurement aligns with a view of school turnaround as serving an equity mission.

---

[2] *Thresholds based on 2011-12 school proficiency rates were 18.5% for elementary schools, 16.7% for middle schools, and 21.7% for secondary schools.*

EQUITY

Is the gap between the lowest-performing schools and the rest of the state closing?

Shifting from an excellence perspective to an equity perspective means defining low-performance relative to other schools rather than against an absolute standard. More specifically, it requires a specific comparison group of non-low-performing schools against which we can define "low-performing." The issues related to measuring progress against a comparison group are similar to measuring progress in achievement gaps. As with achievement gaps, the ultimate goal is for the lower-performing group to not only improve, but to improve at a faster rate than the comparison group, thereby narrowing the gap between them.

Using the fifth percentile to mark low-performing schools, the median (i.e., 50th percentile) proficiency rate is a useful comparison to represent the rest of the state.[3] Tracking the gap between the fifth percentile and the median over time offers a measure of whether the lowest-performing schools are catching up, closing the gap, and making the statewide landscape of school performance more equitable.

---

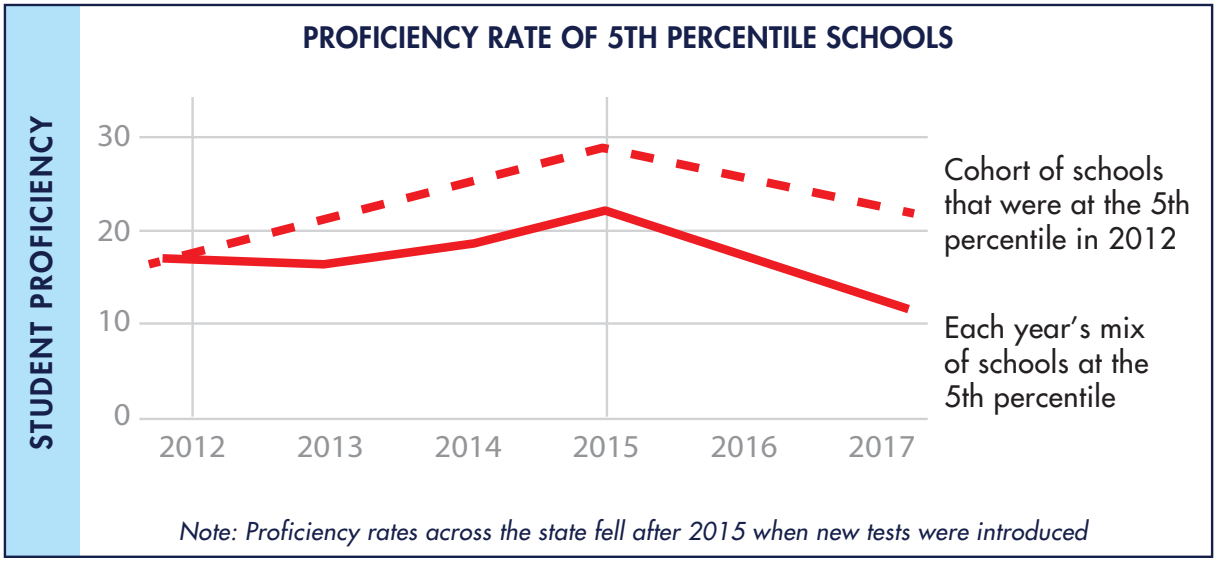
[3] *The median is more appropriate than the mean (or average) in this case for two reasons. First, if using the fifth percentile as one marker, it makes sense to use another percentile for the comparison marker, and the median is the 50th percentile. Second, because the mean is sensitive to outliers, the proficiency rates of the lowest-performing schools themselves would affect the mean. By using the median instead, we avoid a situation in which low-performing schools' proficiency rates influence their own comparison.*

In addition to comparing schools at the fifth percentile each year to the schools at the median in that year, we take a special look at the schools falling at those percentiles in SY2012, the year of the 2012 Priority List and thus eligibility for turnaround interventions. This analysis can suggest to us whether the state's focus on those schools has moved them meaningfully relative to the rest of the state. As we see in the solid red line in the graph below, the average proficiency of schools at the fifth percentile each year increased slightly from 2010 through 2015, then dipped with the rest of the state under TNReady. The dashed line representing the cohort of schools at the fifth percentile in 2012 has shown more improvement.

Yet, even as we see Priority Schools identified in 2012 making some improvement, it is also important to ask whether the schools then falling at the fifth percentile the following year maintain or outperform the prior performance of the schools exiting those lower ranks. Otherwise, it may be that while the state sees improvements in the schools in which it intervenes, equal or larger declines in performance among other schools offset those gains. In essence, the state would be playing a game of leap frog, intervening with and improving some low-performing schools only to see others schools regress to replace them at the same low performance level.

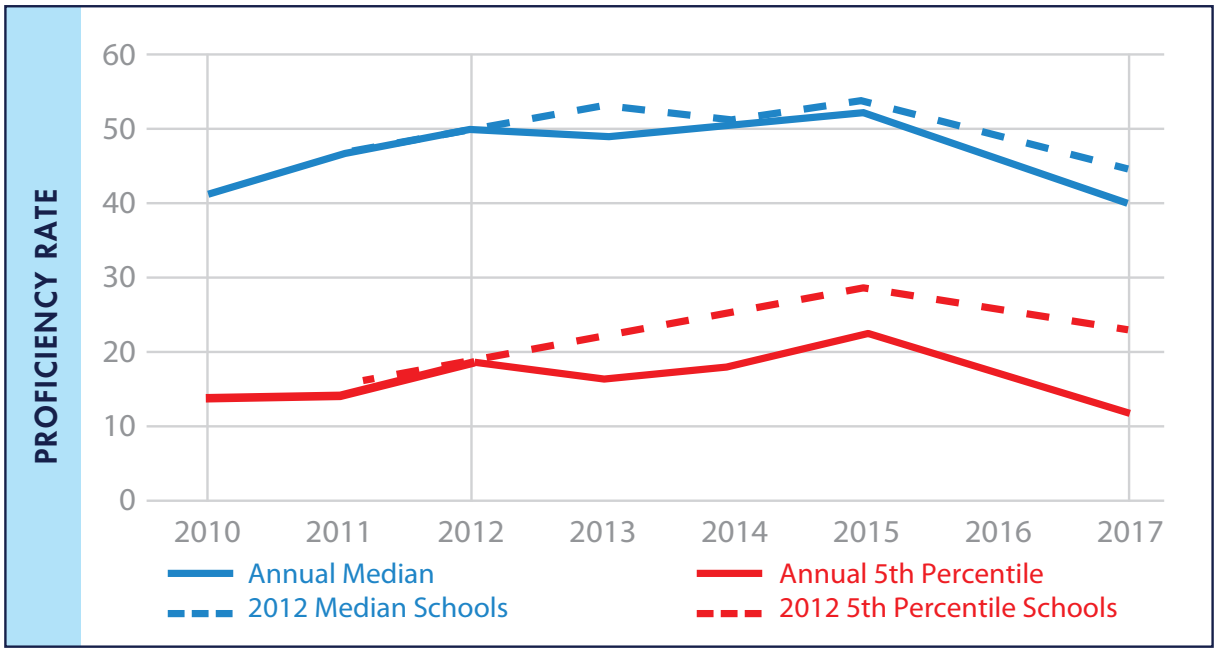
Clearly, the goal of a state turnaround cannot be merely to change which schools are low-performing, rearranging the picture rather than improving it. At least through 2015, it appears that the school improvement picture in Tennessee was indeed improving, not just rearranging. As the schools from the 2012 Priority List improved and generally left the bottom five percent, the proficiency rates of schools found at the fifth percentile each year tended to be slightly higher than the schools at the fifth percentile the year before.

Schools that were once at the bottom improved, but the mix of the schools at the bottom of the state each year did about the same.



Adding corresponding blue lines to the graph to represent the median proficiency rate in each year (solid blue) and the median schools from 2012 (dashed), the graph below shows that the gap between the 5th and 50th percentiles has remained static over time at between 28 and 30 percentage points. However, the specific schools at the 5th and 50th percentiles from 2012 have narrowed to a 21 point gap as of SY2017, and the cohort of schools that were at the 5th percentile in 2012 are now within just 17 percentage points of the state median, almost cutting the gap in half. So while the 2012 cohort improved relative to the median in 2012, the gap between the 5th percent and 50th percent has remained static.

IMPROVED OR REARRANGED?
The schools that were at the five-percent threshold in 2012 have improved relative to the state, but schools now at the threshold are just as far behind.



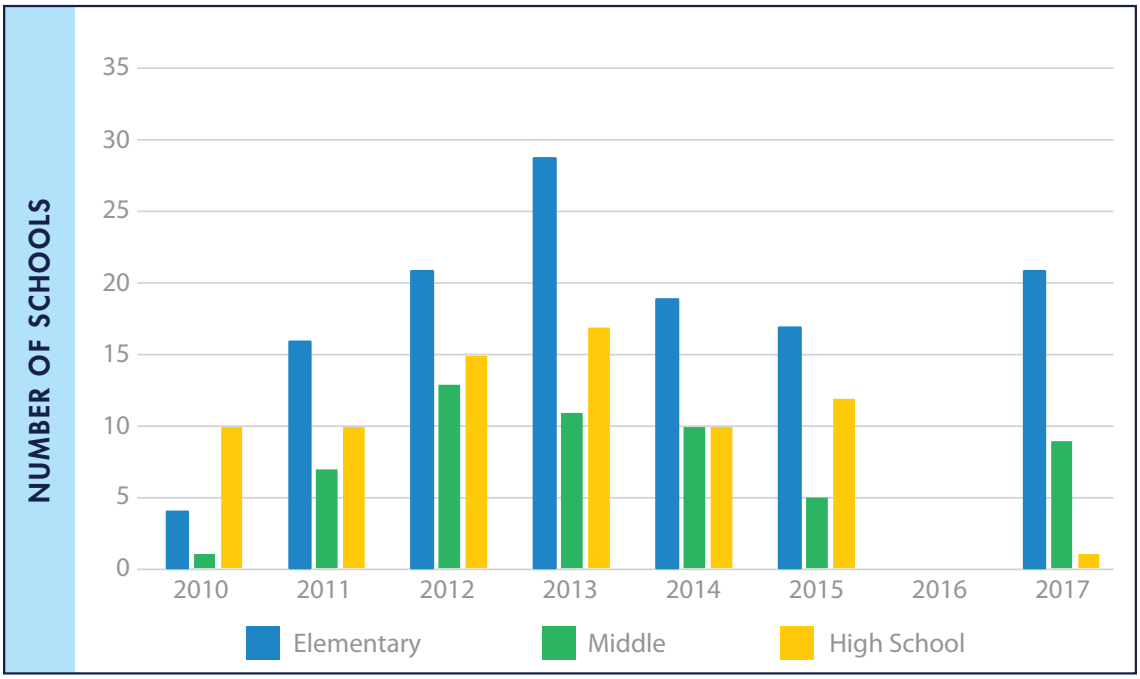
Though examining this gap from an equity perspective reveals little encouraging evidence of progress in closing the gap between Tennessee's lowest-performing schools and the rest of the state, it appears that all schools, including low-performing schools, improved from SY2012 to SY2015. Additionally, the steady trend lines even across testing changes suggest that this relative measure is less sensitive to changes in tests and standards than absolute proficiency rates.

Are there fewer low-performing outliers relative to the rest of the state?

The gap between the 5th and 50th percentiles of performance provides a more stable measure of progress over time than the number of schools below an absolute performance threshold, but it is not directive for identifying how many or which schools are low-performing and need intervention. One way to use the more stable comparative measure to identify specific low-performing schools is to look for schools that are outliers relative to the rest of the state, defining "outliers" as any school too far below the state median[4] performance. This approach would set criteria for the low-performing label that are flexible to changes in the underlying proficiency measure, yet still allow the state to track progress over time in reducing the number of outliers. Ultimately, the goal would be to have no schools lagging so far behind the rest of the state as to warrant special intervention.

As noted earlier, the fifth percentile of school proficiency rates has been roughly 30 percentage points below the state median for several years. This provides a benchmark for defining performance outliers as any schools with proficiency rates 30 points or more below the state median. Reducing the number of outliers would require that growth in these schools outpace the state average, resulting in a narrower and more equitable distribution of school performance.

OUTLIERS: Number of Schools 30 Points Below State Median Proficiency Rate Peaked in 2013, Then Fell Before Introduction of TNReady



The graph above shows a fairly consistent pattern across grade levels, with the number of outliers peaking in SY2012 and SY2013, and falling over the following years. The notable exception is elementary schools, where the number of outliers increased to its highest level in four years with the advent of TNReady tests.

Using a set distance below the median to define outlier schools as low-performing combines the practical, intuitive advantages of setting a threshold for identifying schools with an end goal of having no low-performing schools, while also being both flexible to shifts in the underlying proficiency rate due to testing or standards changes or real progress in statewide student outcomes.

---

[4] *This value also aligns with John Tukey's (1977) proposed definition of a statistical outlier as an observation at least one and a half times the interquartile range away from the median, where the interquartile range is the difference between the 25th and 75th percentiles. The interquartile range of the distribution of school proficiency rates in SY2012 was roughly 20 points; multiplied by one and a half gives 30 points below the median as the definition of a low-performing outlier under the Tukey method.*

EFFICIENCY

The third rationale for identifying and intervening in the state's lowest-performing schools is that it can be an efficient use of limited resources.

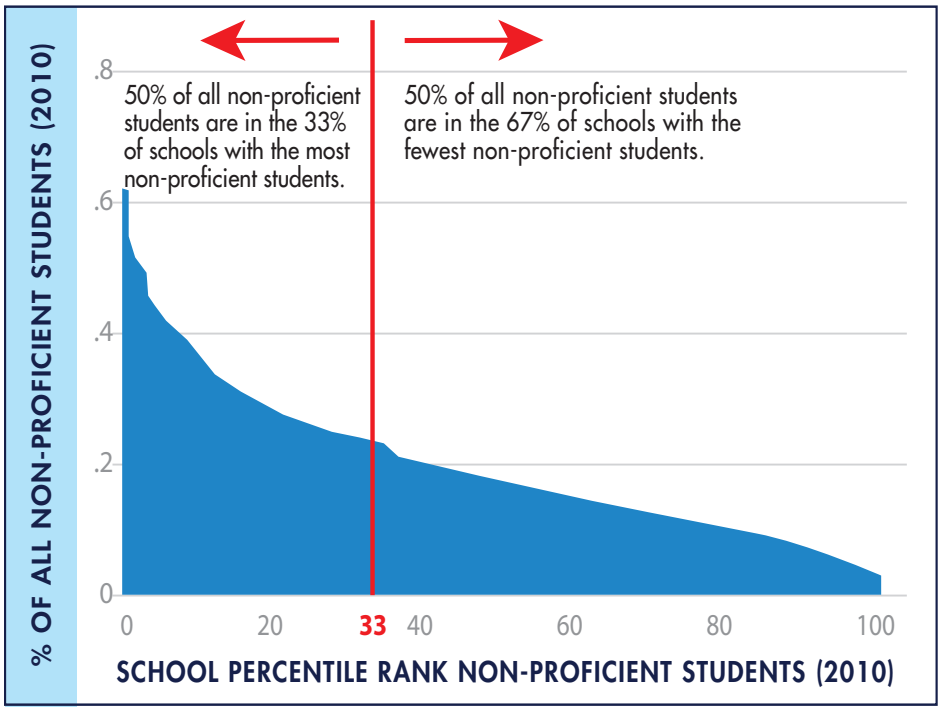
If interventions in those schools are successful, and the number of under-performing students in those schools declines, contributing to both an improvement in statewide performance as well as a more equitable distribution of school performance. The concentration of non-proficient students in the lowest-performing schools is one way of measuring the need for targeted school turnaround efforts. We consider two ways to measure how the concentration of non-proficient students has changed in Tennessee.

Are non-proficient students becoming less concentrated across the state's schools?

The conceptualization of concentrated non-proficient students in this brief comes from Balfanz and Letgers' (2004) research on high school dropouts, where they note that half of all dropouts come from just 12 percent of the nation's high schools. They argue that given this concentration, efforts to decrease the national dropout rate must focus on those schools. If the need for targeted turnaround interventions in a state is expressed in this way, as non-proficiency concentrated in a small number of schools, then the progress of the interventions could be measured not only by their contribution to statewide performance measures, but also by the decrease in concentration of underperformance in relatively few schools.

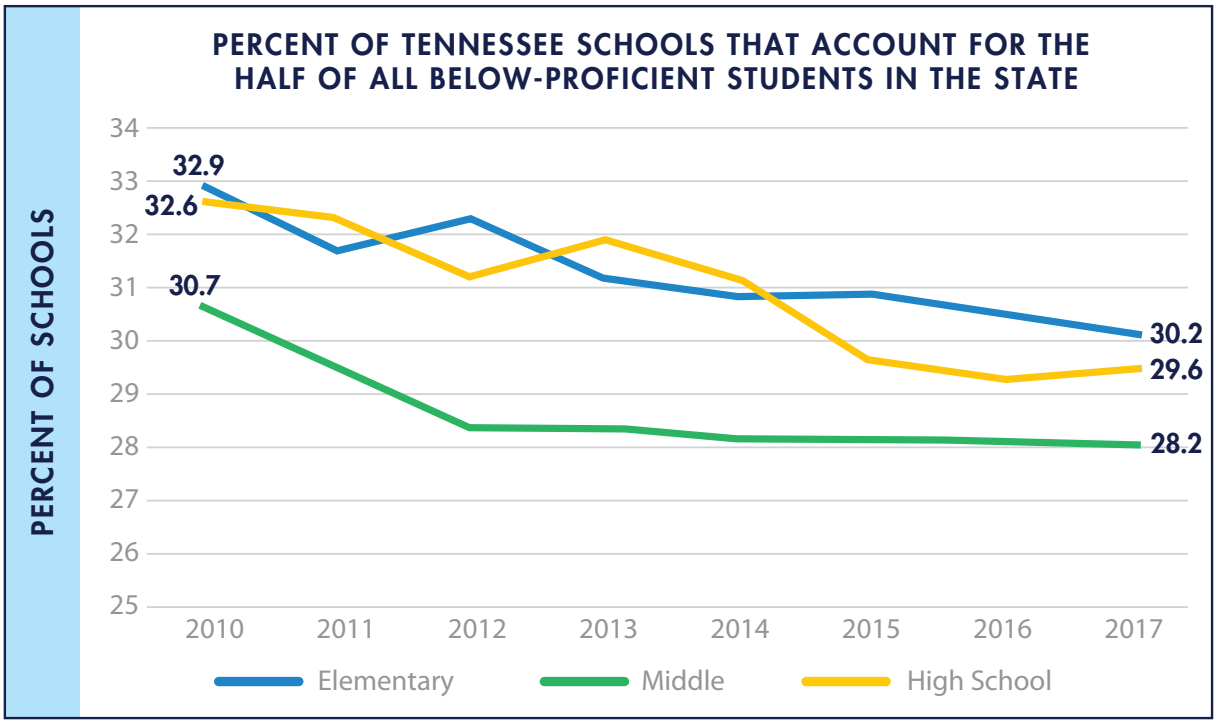
We create a metric for the concentration of underperformance by first ranking schools by the number of students testing below proficiency benchmarks on state assessments. Starting with the school with the most non-proficient students (on the far left of the graph below), we add schools until the non-proficient students in those schools account for half of all non-proficient students Tennessee (the vertical red line in the graph below). The proportion of all schools in the state needed to reach that mark gives us a measure of concentration, with 50 percent of schools representing a theoretical upper limit, and lower values reflecting higher levels of concentration. In the graph below, for elementary schools in SY2012, just one third of all elementary schools could account for half of all non-proficient students; to achieve perfect parity, the red line would need to move seventeen points to the right.

LOCATING NON-PROFICIENCY



As of 2010, half of underperforming elementary students were in one-third of schools. Instead of seeing concentration increase toward 50 percent, the proportion of schools that account for half of the state's below-proficient students has declined slightly but steadily across all three levels of schooling from SY2010 through SY2017. This indicates a modest increase in the concentration of low-performing students in a small number of schools. Meaning, the problem of Tennessee students performing below proficiency standards on state tests is becoming more concentrated within a lower number of schools rather than less concentrated.

Over time, the state's population of low-performing students has become slightly more concentrated in a smaller portion of schools.



By this measure of progress, any issues Tennessee has with student performance have increasingly become problems of low-performing schools.

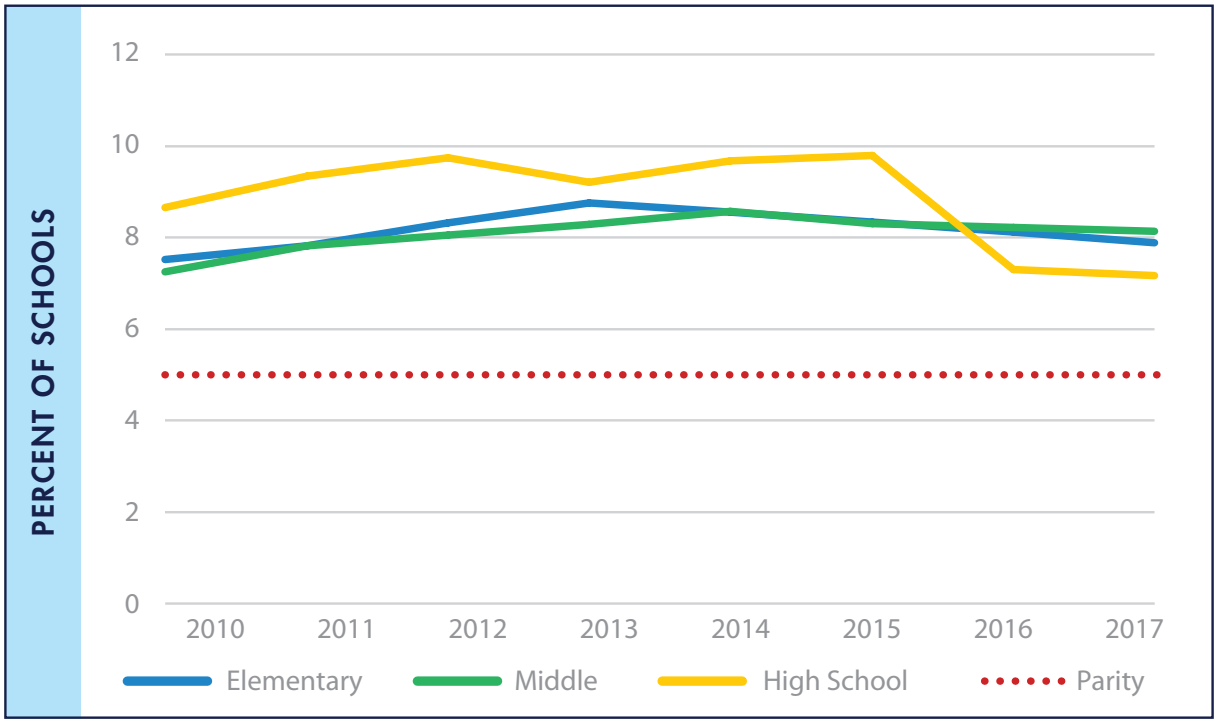
Do the bottom five percent of schools account for a lower proportion of non-proficient students?

Another way to consider the concentration of non-proficient students in low-performing schools is by measuring the proportion of all non-proficient students in the state who attend schools falling at or below the fifth percentile. This metric is relevant because it considers what proportion of the state's non-proficient students could be served by an intervention targeting the bottom five percent of schools. If all schools performed equally—perfect parity—there would be little rationale for targeting any subset of schools for intervention, as the need for reform and potential improvements would theoretically be equal at every school.[5] The proportion of students in the lowest five percent of schools is a way of estimating how far from perfect parity across schools we are, and it is thus a measure of how much strategic advantage there may be to targeting these schools for turnaround instead of selecting schools randomly. Specifically, how much higher that proportion is than what we would observe under perfect parity (five percent) reflects the efficiency of intervening in those schools and the extent to which student performance in Tennessee is disproportionately a problem of low-performing schools.

[5] *For the purposes of this brief, we ignore differences in school size which complicate this measurement. That is, a large school with a high proficiency rate may have more non-proficient students than a small school with a low proficiency rate. A forthcoming brief considers how enrollment differences may limit the potential benefits of selecting schools based on proportions of non-proficiency students rather than numbers of non-proficient students.*

The graph below tracks the proportion of all non-proficient students who attended schools falling in the bottom five percent of proficiency rates every year. From SY2010 to SY2017, the lowest-performing five percent of elementary and middle schools have enrolled between seven and nine percent of all non-proficient students statewide. This translates to low-performing schools having 50 to 80 percent greater concentration of the state's non-proficient students than if non-proficient students were distributed equally across all schools. However, the proportions have been falling for both elementary and middle schools since the state began turnaround efforts in SY2013, meaning interventions targeting the bottom five percent of schools have decreasing potential to impact statewide performance.

Proportion of non-proficient students in bottom 5% schools Is largely unchanged over time.



Among high schools, the bottom five percent of schools contained close to 10 percent of non-proficient students, meaning the opportunity for improvement in these schools was almost twice that of the average school. The proportion has fallen under TNReady, though this may owe less to progress in school performance than to the rest of the state's high schools gaining more non-proficient students as the overall proficiency rate fell. However, this affirms the interpretation of this metric as an indicator of how strategic it may be to target specific schools, as given the low proficiency rates for high schools across the state, there is arguably less sense in singling out specific schools for their low performance.

Overall, from an efficiency standpoint, the picture has changed little since Tennessee's turnaround efforts began. Though on one hand there is little evidence of progress, this also substantiates the continued rationale for engaging in turnaround efforts.

OVERALL CONCLUSION FROM FINDINGS

Earlier research from Tennessee has considered whether schools targeted by turnaround interventions improved more in response to those interventions than they would have without them. This brief has taken up the separate question of whether those efforts, combined with other reforms, have led to progress in the overall landscape of school performance statewide. The answer, and even how we define progress, depends on which goal we set for turnaround efforts—what problem were we trying to solve? Defining the goal through three separate lenses—excellence, equity, or efficiency—creates three separate definitions of progress and three different answers. The shift from TCAP to TNReady complicates some of these measures of progress, but over the final years of TCAP, the state demonstrated progress in reducing the number of schools below 20 percent proficient as an absolute threshold, or more than 30 points below the state median as a relative threshold. These trends suggest the state was improving both the excellence and equity of student outcomes at the lower end of school performance.

By other measures, however, we see less progress. Despite overall improvements, the gap between the fifth percentile and the state median has remained static. While the lowest-performing schools have improved, so too have other schools in the state, leaving the gap unchanged. Finally, the disproportionate concentration of non-proficient students in a small number of schools indicates that a significant portion of student underperformance in Tennessee remains concentrated in low-performing schools and may be best addressed through continued targeted focus of efforts in those schools rather than statewide reforms.

As noted in the introduction, despite some evidence that low-performing schools have been improving, they have not been improving fast enough to close the gaps with the rest of the state. Picturing schools as performing along a bell curve, the curve may have shifted to the right without narrowing. Whether those concerned about school turnaround should celebrate this shared growth depends on how we define the goals for turnaround and how we decide to measure progress. By any fixed definition of "low performance", we see fewer schools meeting that definition as all schools improve. But if we define low-performance relative to the rest of the state, we do not see progress in closing the gaps between schools identified as low-performing and other schools in the state.

Tennessee, and other states tackling school turnaround, should understand the overall problem of low-performing schools apart from growth in the few schools receiving targeted interventions. Defining the problem to be solved is the first step in developing a coherent turnaround strategy. This strategy also includes clarifying the purpose of the turnaround interventions and measuring progress using measures that align with the program's goals. With a more coherent vision, states will be able to better align supports and measure their intended impact.

COHERENT TURNAROUND STRATEGY:

- Clearly define the problem turnaround efforts intend to solve
- Clarify the intent of turnaround work
- Track progress using measures that align with the goals

REFERENCES

Balfanz, R., & Legters, N. (2004). *Locating the dropout crisis. Which high schools produce the nation's dropouts? Where are they located? Who attends them?* Baltimore, M.D.: Johns Hopkins University: Center for Research on the Education of Students Placed At Risk. Retrieved from https://files.eric.ed.gov/fulltext/ED484525.pdf

Guthrie, J. E. (2017). *Driving improvement in low-performing schools: Lessons from five years of research on state turnaround efforts.* Nashville, TN: Tennessee Education Research Alliance. Retrieved from https://peabody.vanderbilt.edu/research/tnedresearchalliance/files/Lessons_From_School_Turnaround.pdf

Pham, L., Henry G. T., Zimmer, R., & Kho, A. (2018). *School turnaround after five years: An extended evaluation of Tennessee's Achievement School District and local Innovation Zones.* Nashville, TN: Tennessee Education Research Alliance. Retrieved from https://peabody.vanderbilt.edu/research/tnedresearchalliance/files/School_Turnaround_After_Five_Years_FINAL.pdf

Zimmer, R., Henry, G. T., & Kho, A. (2017). The effects of school turnaround in Tennessee's Achievement School District and Innovation Zones. *Educational Evaluation and Policy Analysis, 39(4)*, 670–696.

Tukey, J. (1977). *Exploratory Data Analysis.* Reading, MA: Addison-Wesley Publishing Company.

Zimmer, R., Kho, A., Henry, G. T., & Viano, S. (2015). *Evaluation of the effect of Tennessee's Achievement School District on student test scores.* Nashville, TN: Tennessee Consortium on Research, Evaluation and Development. Retrieved from https://peabody.vanderbilt.edu/research/tnedresearchalliance/files/ASD_Impact_Policy_Brief_Final_12.8.15.pdf

TN EDUCATION RESEARCH ALLIANCE