

# Getting State Education Data Right: What We Can Learn from Tennessee

## CNA Education

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# Introduction

Federal education policy in recent years has encouraged state and local education agencies to embrace data use and analysis in decision-making, ranging from policy development and implementation to performance evaluation. The capacity of these agencies to make effective and methodologically sound use of collected data for these purposes remains an outstanding question. As hundreds of millions of dollars are distributed from the federal Department of Education to states developing longitudinal data systems, education leaders approach data use with widely divergent levels of skill and understanding.

This paper reviews four guiding principles for education stakeholders as they attempt to use data as a basis for making decisions. These principles draw heavily from experiences and observations of CNA field analysts, who are embedded in state departments of education to provide ongoing technical assistance. We focus on experiences of field analysts in Tennessee, a state currently implementing a nearly \$502 million federal Race to the Top grant—a grant largely won based on the commitment to data use represented by its long-standing value-added assessment system (TVAAS). As in states across the country, Tennessee now confronts a series of challenges in developing data use skills across the state education agency (SEA), local leaders, principals, and teachers, especially as significant portions of principal and teacher evaluation are now tied to student value-added data. The increasing importance of understanding and acting on educational data make clear the need for common guiding principles in their use. The principles include the following:

- Establish common definitions and understandings of terms
- Anticipate potential unintended consequences of data definitions and priorities
- Ensure that data definitions are applied uniformly to appropriately homogeneous target populations and disparately to populations that are appropriately heterogeneous
- Disaggregate data in order to reveal the most complete and accurate picture

Based on CNA's work in the state, we present these principles in the use of data for state-level decision-making. In so doing, we intend to inform a conversation about the appropriate role of student and teacher performance data in policy decisions and to prompt deeper research into how state leaders collect, analyze, and act on those sets of data.

# Establish common definitions and understandings of terms

Varying definitions of key data points hinder the research and policy communities in their efforts to understand educational needs and conditions. Especially problematic is the use of disparate definitions while attempting to describe the same phenomena. No Child Left Behind (NCLB), for example, allows states to define their own measures of student “proficiency” and employ their own unique achievement tests, meaning that state-by-state comparisons of student achievement are rendered invalid because of divergent definitions. Likewise, states and districts have taken differing approaches to defining high school dropout and graduation rates, though recent efforts by the National Governors Association and Council of Chief State School Officers (NGA, n.d.) have pushed states to adopt comparable definitions.

## Dropout Rates in Tennessee

The What Works Clearinghouse Practice Guide on dropout prevention underscores the need to track data points to identify students at risk of leaving school: “Regularly analyzing student data is the critical first step both for determining the scope of the dropout problem and for identifying the specific students who are at risk of dropping out and should be considered for extra services or supports” (Dynarski, et al., 2008). However, the specific scope and the students identified will vary with the methods used to obtain them.

States have generally adopted one of three approaches to reporting their dropout rates (REL Midwest, n.d.):

- 1) Event Dropout Rate – the percentage of enrolled high school students who leave school each year without completing their high school degrees
- 2) Status Dropout Rate – the percentage of 16-24 year-olds in a population who are not enrolled in school and have not earned a high school diploma or its equivalent.
- 3) Cohort Dropout Rate – the percentage of students starting together in a specific grade who eventually drop out and fail to graduate.

Dropout rate statistics from Tennessee reflect the wide variation in understanding that may result from using one definition of dropout rather than another, as reflected in the following table.

**Dropout Rates by Cohort and Event Measures, 2007 – 2009 (TDOE, 2010).**

	2007	2008	2009
Cohort	9.6%	10.1%	10.4%
Event	3.0%	4.3%	3.0%

In Tennessee, however, the challenge of understanding the state’s dropout problem was further exacerbated for years by different practices among district leaders in defining the scope of the dropout rate. For instance, some districts did not count students requiring five years to complete their diplomas towards their graduation rates, while others included five-year graduates.

Without clear direction from the SEA, and with little guidance from the federal Department of Education, districts in Tennessee took independent paths to understanding the prevalence of student dropout at their high schools. This patchwork approach made it impossible to collect consistent data across the state.

## **Changes in State Report Card Standards**

Tennessee also has recently changed the standards by which it assigns “grades” to schools through the State Report Card. The formula for assigning grades to schools shifted for the 2009-10 school year, with achievement data from 2009 serving as a fixed transition point from the old standards and assessments to the new standards and assessments under the Tennessee Diploma Project (TDP)—part of the American Diploma Project led by Achieve and other education reform groups.

Prior to this shift, the state set subject-specific expected growth rates based on criterion-reference test scores from 1998. TVAAS data tracked student progress based on 1998 standards until new, more rigorous standards were adopted under TDP. According to the SEA, it “has reset the growth standard to reflect the state’s average student performance in 2009.” New standards, as determined by a slate of newly implemented end-of-course tests from grades 3 and up, will challenge schools, teachers, and students to m higher benchmarks that reflect “the minimal expectation for student academic progress and...the current status of educational attainment....” (TDOE, 2009).

As a result of this change, a school rating an A in 2009 could well earn a B or C under the new standards for the same level of performance. Although the state department of education news release announcing the change in standards insisted that “These changes do not reflect a loss of learning but a change in the scale,...,” that change of

scale becomes all-important in efforts to track ongoing school performance. When such baseline changes in an evaluation are adopted, schools and districts have difficulty gauging how well they and, most important, their students, are performing over a time period that spans the transition. An overly hasty comparison of student and school performance before and after the baseline transition that relied only on school improvement grades instead of on the numerical school indicators behind them would likely be highly misleading.

These two examples illustrate the importance of making data definitions explicit. This is all the more critical in view of the high stakes and significant fiscal implications now attached to many performance indicators.

# Anticipate potential unintended consequences of data definitions and priorities

By definition, unintended consequences pose perennial challenges for policy-makers and practitioners who, given the information available at the time of a key decision, are unable to foresee all of the eventual ramifications of a decision. Although many people generally think of unintended consequences as the unfortunate by-product of specific policies or actions, these consequences also result from the way data are defined and prioritized.

## Promotion and Retention Rates in Tennessee

Recent changes in Tennessee's approach to calculating its grade-to-grade promotion rate provide a good example of a decision that seems to involve a simple bookkeeping adjustment but, in actuality, stands to have a significant impact on students. Previously, the state's promotion policies in grades K-8 were heavily influenced by the desire to preserve the developmental and social ties of grade-level cohorts. Thus, it was a rare occurrence for an eighth grade student to be held back from entering the freshman year in high school together with the rest of his or her peers. One result of this permissive approach was that a significant percentage of students entered high school with educational profiles indicating that they would be unlikely to graduate in four years. Recognizing this fact, the SEA excluded from graduation rate calculations entering high students whose graduation in four years, if at all, was deemed unlikely.

Now, however, Tennessee is in the process of adopting new guidelines for calculating its graduation rate. These guidelines were promoted by the National Governors Association and endorsed by the federal government in order to achieve uniformity and comparability nationally in the states' graduation rate reports (NGA, n.d.) .Once these guidelines are implemented, Tennessee will calculate graduation rates using the full cohort of students entering high school as the denominator, rather than only those whose academic profiles indicate a high likelihood of on-time graduation.

This change is far from a mere bookkeeping adjustment. Students are likely to be affected directly by this change of definition, and in ways that may have been unforeseen and unintended. A possible consequence of the new guidelines, is that an increasing number of low-performing middle school students will now be retained at earlier grades for remedial work, rather than passing them along to the next grade, in the hope that they



will be better prepared for their transition to high school and thus more likely to graduate. Unfortunately, however, little research exists to validate the policy of retaining students at any grade. And some reviews of studies that have been undertaken indicate that keeping students back results in their being less, not more, likely to graduate from high school (Broderick, 1994).

Unwittingly, then, in an effort to increase its graduation rates, Tennessee could end up doing precisely the opposite. And the lesson here may be that data definitions are far more powerful than we might anticipate.. They have the potential for affecting the very phenomena they are intended to describe.

# **Ensure data definitions are applied uniformly to appropriately homogeneous target populations and disparately to populations that are appropriately heterogeneous**

As definitions of key data points such as dropout and graduation rate evolve, educators, researchers, and data managers struggle to ensure accuracy in their analyses of collected information. When a state makes a policy decision such as Tennessee's to alter its standards for assessing school performance or the formula by which graduation rates are calculated, the policy will likely be affected by the tension between dual needs for consistent enforcement and flexible response to actual conditions. This is especially important when these changes have potential implications for high stakes decisions – such as decisions about restructuring or closing poor-performing schools. And it is also important if our country is ever to obtain an accurate national education picture.

In addition to the difficulties that can result from changing a data definition in mid-course or making comparisons between phenomena that are comparable in name only, it becomes problematic when states either fail to apply a data definition uniformly across a particular population or attempt to apply a data definition uniformly to a population within which there are important variations. A single example from Tennessee illustrates this challenge.

## **Exempting middle colleges from a four-year definition of “graduate” in Tennessee middle colleges**

Five “middle colleges” in Tennessee (generally in the state's more urban/ suburban areas) provide students the opportunity to pursue both a high school diploma and coursework toward the completion of a two-year post-secondary degree. The Memphis Middle College, hosted by Southwest Tennessee Community College, enrolls approximately 225 students, making it the largest middle college in the state by enrollment. By comparison, the Nashville Middle College at Nashville State Community College enrolls only about 75 students (TDOE State Report Cards, 2009).

As discussed earlier in this paper, Tennessee defined the high school graduation rate for many years based on the number of students earning their diplomas within four years of

ninth grade, thus excluding students completing high school coursework in five years from the calculation. Under an exemption to this rule, middle colleges were granted an extra year to graduate students and thus maintained extremely high graduation rates compared to school averages statewide. In 2009, for example, both the Memphis and Nashville middle college graduation rates were 97 percent, according to their State Report Cards.

Although all high schools in the state may now count students graduating in five years toward their graduation rate, the exemption previously granted the middle colleges made it difficult at the time to compare the effectiveness of middle colleges and traditional high schools. Some educators in Tennessee accused districts of sending students they deemed unlikely to graduate on time into middle colleges in order to buy an extra year to get them a diploma, thus diminishing the negative effect those students would have had on the districts' overall graduation rates. On the other hand, proponents of the middle college exemption argued that students simultaneously pursuing courses to fulfill diploma requirements for high school and degree-credit courses for college deserved the chance to take an extra year to complete these dual tracks of study.

Given the different missions of the middle colleges and traditional high schools, there seems to be at least a prima facie justification for an exemption from the four-year limitation for high school graduation. The real problem of comparability in this situation is not so much between the traditional high schools and the middle colleges as between high schools who could send their low-performing students to the middle colleges and pad their four-year graduation rates and the other high schools that had no such option. From an accountability standpoint, the high schools whose students have the middle college option have an unfair advantage over the high schools without that recourse. Redefining high school graduation across the board in terms of a five-year limitation has removed that unfairness and leveled the playing field.

# Disaggregate data in order to reveal the most complete and accurate picture

Disaggregated data permit a more fine-grained analysis than broadly categorized data. In certain instances, however, disaggregated data may compromise privacy (especially when a disaggregated population is very small) or reveal a reality that is more politically uncomfortable than the aggregated picture. When this is the case, officials may balk at releasing the disaggregated findings. Such reluctance may hinder the ability of various education stakeholders to understand the full complexities of the issues involved.

With the passage of No Child Left Behind, the disaggregation of data by socio-economic sub-group has become a requirement for all states and has frequently given officials and the public a far less positive picture of education in the U.S. than the combined overview provides. According to Alliance for Excellent Education vice-president Phillip D.C. Lovell, however, several significant challenges continue to inhibit states' compliance with the disaggregation requirement (Zehr, 2010):

- Inadequate data systems
- Unforeseen difficulty with data processing
- Changing definitions of graduation.

One result is that several states are still unable to report anything but a consolidated graduation rate.

## Disaggregation of data by both race and sex

A recent report from the Schott Foundation found fewer than half of black male students nationally graduate within four years of enrolling in high school (Holzman, 2010). The report notes, however, that many states, including Tennessee, publish data disaggregated by sex and separately by race but not by both race and sex together. (This limitation is also found in the periodic EDFacts reports from the U.S. Department of Education.) The Tennessee State Report Card lists the 2008 overall graduation rate for all black students at 72 percent. By comparison, the Schott report lists the 2007-08 five year graduation rates for black males in Tennessee at 52 percent and the on-time (fourth-year) rate at 44 percent, compared to 71 percent for white males for both fourth- and fifth-year graduates.

Presenting graduation rates only by racial/ethnic category and not disaggregating the data further by sex paints a different portrait than fully disaggregated data. In this case, it masks the severity of the problem of black male graduation and could possibly point to a different set of policy solutions than would a more nuanced picture. Although the aggregated view may be less alarming, lack of deeper understanding of the educational challenges involved can prevent the implementation of strategies that would address problems not fully revealed.

Even disaggregated data, however, can do no more than provide a superficial picture that reflects various underlying factors and conditions that must be carefully diagnosed. Only that diagnosis, and not the picture itself, can provide an adequate basis for a confident and effective response.

## Conclusion: Data and Action

In a time of increasing pressure to respond to expectations for improved performance of students, teachers, and schools and a growing emphasis on “data-driven decision-making,” policy makers and education leaders understandably may be inclined to act quickly and decisively based on the latest data findings. Although data should indeed inform policy decisions, the examples cited earlier illustrate that ensuring the quality of those data is critically important. Rather than move immediately to develop and implement often costly new initiatives when current programs and policies seem ineffective, political and education leaders should carefully assess the strengths and limitations of the data at their disposal and recognize that, particularly when the data are unreliable, the best action may be to re-frame the issue under consideration and pursue a more complete analysis.

This is precisely what officials in Tennessee did when a study commissioned by the state Comptroller’s Office of Research and Education Accountability cast doubt on the long-term effectiveness of the state’s Pre-K program in enhancing student achievement (Strategic Research Group, 2009). Because there were concerns about the validity of the study, rather than taking immediate action to alter the Pre-K program, the state continued to support it based on research in other states on the benefits of Pre-K, a strong basic belief in the value of early childhood education, and anecdotal support for the state’s current efforts. Then, the Tennessee Department of Education worked with Vanderbilt University’s Peabody Research Institute to obtain a federal Department of Education grant to conduct a rigorous analysis of the state’s program that will provide much more reliable data to facilitate a better understanding of the effects of Pre-K on Tennessee students and provide much better guidance for any related actions the state may want to take.

The good news about the growing emphasis on data-driven decision-making is that it has been accompanied by a strong push – much of it driven by federal education initiatives – to increase the capacity of the states to collect the data required for a thorough assessment of state education conditions and of the impact of various efforts to improve them. The Tennessee experience has made clear, however, that although the increased focus on data in the states has great promise for facilitating important education improvements, this promise often fails to be realized. Even more problematically, various weaknesses in the data themselves, inadequate data analysis, or misplaced confidence in the ability of a limited set of data to indicate success or failure can seriously compromise a state’s efforts to move forward.

While the principles outlined above are grounded in CNA's experience in Tennessee, the complexities of data analysis in that state will likely resonate with professionals in the field nationwide. Establishing a set of first principles to guide the challenging work of data identification, collection, analysis, and decision-making produces a framework with which education may find the best data to make decisions based on a comprehensive approach to data use.

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