



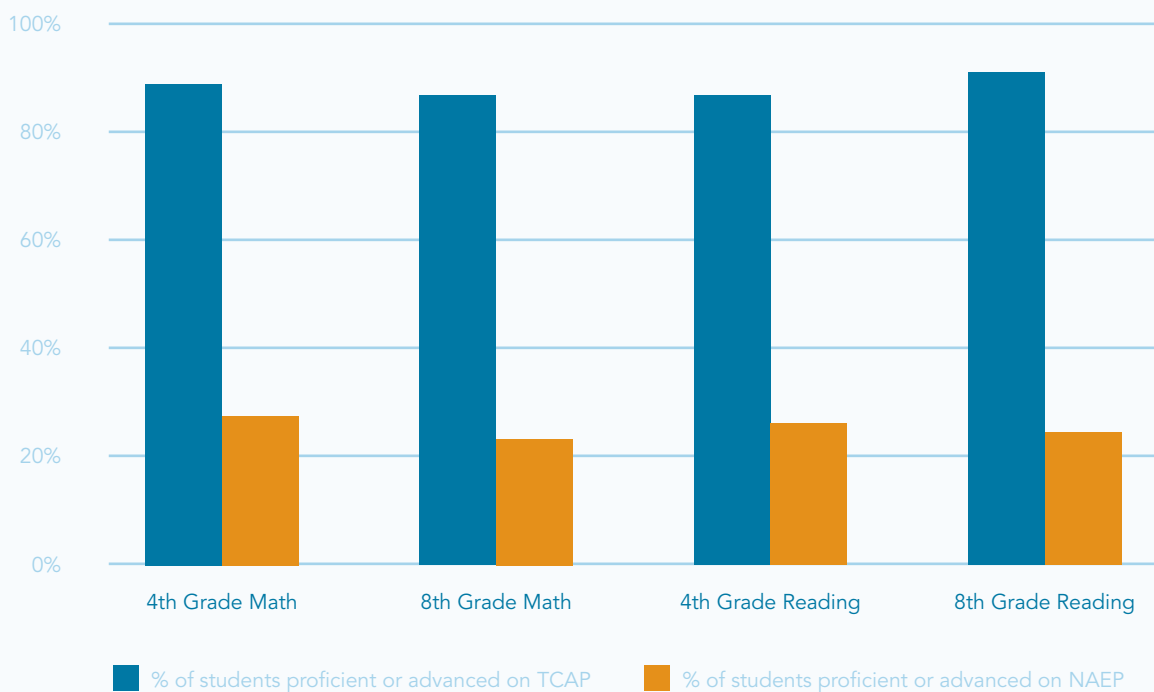
Meaningful Measures of Student Learning:

Improving Assessment in Tennessee

Introduction

Over the past several years, results from national assessments and reports revealed that Tennessee was failing to prepare students for success after high school. In 2007, the U.S. Chamber of Commerce’s *Leaders & Laggards* report gave Tennessee an “F” for truth in advertising about student proficiency levels. While Tennessee reported that over 90 percent of students in grades 3-8 were proficient in math and reading, less than 30 percent of fourth-graders and eighth-graders in Tennessee were proficient on the National Assessment of Educational Progress (NAEP).¹ Table 1 illustrates the vast difference between the percentage of students reported to be proficient in math and reading on Tennessee Comprehensive Assessment Program (TCAP) tests and on NAEP in 2007:

Tennessee’s “F” for Truth Advertising in 2007



Source: U.S. Chamber of Commerce (2007) *Leaders and Laggards: A State-by-State Report Card on Educational Effectiveness* Table 1

The National Center for Education Statistics published a report that found Tennessee’s math and reading proficiency standards in 2007 to be far below the “basic” level of proficiency set on NAEP.² Further, Tennessee’s proficiency standards were the lowest in the country in eighth-grade reading, fourth-grade math, and eighth-grade math.³

These reports revealed that states were adopting proficiency standards for math and English language arts that were vastly inconsistent and, in some cases, exceptionally low. For Tennessee, these reports indicated that achieving proficiency on Tennessee standards and assessments did not necessarily mean students would exit high school prepared for college or to compete in the global workforce.

Tennessee’s “F” for truth in advertising about student proficiency levels spurred collaborative action. In 2007, the state began developing the Tennessee Diploma Project standards, a set of academic standards more closely aligned with the skills and knowledge students needed to succeed in college and career. In 2008, the State Board of Education passed these new, more rigorous standards, indicating a new focus on college and career readiness.⁴

In 2010, Tennessee took another important step, adopting the Common Core State Standards in English language arts and math.⁵ The adoption of these standards increased expectations for student learning and called for significant instructional shifts to occur in classrooms. Research has found that these standards provide greater coherence than previous state standards, progressing more logically from one topic to another. This coherence more effectively ensures that students establish mastery in foundational concepts before progressing further in course content.⁶ These standards also focus on fewer concepts, allowing students to develop greater depth of content knowledge across subject areas.⁷ Finally, these standards align more closely to the standards of high-achieving countries and are rooted in the knowledge and skillsets students need to succeed in college and career.⁸

While Tennessee's current standards set higher expectations for what students should know and be able to do, aligned assessments make those expectations concrete and establish measurable goals for teachers and students. During the transition to these new standards, Tennessee has continued to implement standardized assessments that are not fully aligned with Tennessee's State Standards, sending mixed signals to teachers and students about what they are expected to teach and learn. Recent research found that in states where academic standards and assessments were less aligned, teachers had weaker instructional responses to standards.⁹ As this paper will discuss, these mixed signals undermine the goals behind standards-based reform and likely contribute to weaker than expected effects of the standards on teachers' instruction and student achievement.

Research finds that the content and format of assessments affect teachers' implementation of academic standards.¹⁰ Thus, if student progress on Tennessee's State Standards is not measured with a high-quality, aligned assessment, it is unlikely the standards will help teachers and districts reach their instructional and student achievement goals. This paper presents the potential impact high-quality, aligned assessments could have on education in Tennessee, outlines the history of standards and assessments in Tennessee and across the nation, provides an overview of the quality of assessments implemented since 2001, and establishes evidence-based criteria for high-quality assessments. The paper concludes that in order to ensure students in Tennessee are progressing toward college and career readiness, it is critical to complement Tennessee's State Standards in English language arts and math with high-quality, aligned assessments.¹¹

The Importance of High-Quality Assessment

Standardized assessments play an important role in school improvement practices, providing diverse stakeholders with important information about students' academic growth and performance during a school year. Data from standardized assessments allow different stakeholders to recognize when students are making progress and when students' academic needs are not being met. Such data allow educators to intervene early with students who are behind and to push higher achieving students to perform at even higher levels. While it is essential to use multiple measures of student achievement to gain a holistic understanding of student progress, data from standardized assessments provide teachers, parents, and schools with objective, quantitative measures of student performance that they would not otherwise have.¹²

In Tennessee, data from standardized assessments form an important component of the state's accountability system, impacting important decisions made at the school, district, and state levels. For this reason, it is imperative for assessments to yield high-quality data that reflects student progress on Tennessee's State Standards. When assessments produce high-quality data that accurately reflect student learning, they have the ability to guide decisions that yield improved outcomes for all students. This section will outline the importance of high-quality standardized assessments to parents, teachers, principals, district leaders, and policymakers.

How do assessments help parents and students?

Well-defined expectations: Students learn most effectively when they are provided with clear expectations about the knowledge and skills they should develop during the school year.¹³ High-quality assessments reinforce academic standards in providing students and parents with clear expectations of what students should achieve in any given school year, guiding their progression through course content and framing their learning in the larger context of the year. To ensure that expectations are clearly communicated, it is important to provide parents and students comprehensive information about assessments and sample test items. In Tennessee, data from standardized assessments factor into students' final course grades, impacting their graduation from high school. For this reason, students' performance on standardized assessments prior to 12th grade keep students and parents informed about their progress on the standards and their likelihood of successful transition from high school to college or career.¹⁴

Indicators of college and career readiness: Assessments also provide parents and students with feedback on a student's educational progress at the end of the school year. When data from high-quality assessments indicate that students are struggling in certain subject areas or with specific standards, parents can support early intervention practices to help students catch up to their peers. A high-quality assessment allows parents to understand their students' progress on standards in comparison to other students in Tennessee and around the country. When assessments are high quality and linked to standards of college and career readiness, data from these assessments can help parents and students understand how they are progressing toward success in college and career.

How do assessments help teachers?

Clear expectations: High-quality assessments and standards provide teachers with a roadmap, making the expectations set forth in standards concrete. In this way, high-quality assessments have the potential to guide teachers' instructional decisions, providing them with important indicators about how to balance the time they spend on each of the standards and a better understanding of what their students should be able to do after being taught the standards. In a well-designed assessment system, assessments are so well aligned to the standards that teaching to the test and teaching to the standards become synonymous. While narrowly focused assessments can cause a narrowing of instruction, well-aligned assessments should lead to well-balanced instruction that reflects the full rigor and depth of academic standards.

Instructional improvement: High-quality assessments provide teachers with information that helps them identify instructional strengths and opportunities for improvement. In Tennessee, data from standardized assessments are used in the Tennessee Value-Added Assessment System (TVAAS), an important component of teacher evaluations. Combined with other measures of teaching effectiveness such as classroom observations, student achievement data, or student perception surveys, data from assessments can provide teachers with valuable instructional feedback. The results of standardized assessments should provide teachers with insight into their instructional strengths in terms of subject areas as well as with certain groups of students. This information can help teachers make data-driven decisions about what types of professional learning opportunities to pursue or where to seek instructional support.

Support for student needs: High-quality assessments provide teachers with information they can use at the beginning of the school year to better understand their students' needs. Students' performance on the previous year's standardized assessment can support teachers' decisions about how to group students and differentiate their instruction. While teachers rely on data from formative assessments and classroom-based assessments to inform their instruction throughout the school year, data from standardized assessments provide teachers with a foundational understanding of student needs at the beginning of the school year.

How do assessments help school and district leaders?

Teacher support practices: In Tennessee, data from standardized assessments are used to calculate TVAAS measures. Through TVAAS data, high-quality assessments provide information to school and district leaders that helps them understand what type of support teachers need and which teachers most need support. This information can help inform mentoring and coaching partnerships, pairing teachers in need of support with highly effective teachers or instructional coaches. Data from high-quality assessments can also help guide decisions at the school or district level about what types of professional development teachers need the most.

Strategic resource alignment: Data from standardized assessments provide district leaders with information about the performance of different groups of students, the performance of students in different subject areas, and the relative performance of different schools in the district. District leaders can use data from standardized assessments to better inform strategic resource investment in key areas of need or to recognize and scale up best practices.

How do assessments help policymakers?

Policy and program evaluation: Assessments provide policymakers with indicators of academic progress at the state, district, and school levels. This information can lead to a better understanding of how policies impact learning outcomes on the ground and can sometimes indicate when policy change is necessary based on student outcomes. Additionally, data from standardized assessments can be used to evaluate the effectiveness of programs, better ensuring that investments in education programs are yielding positive outcomes for students. A great number of policy decisions and program investments rely on longitudinal student achievement data. This research can be even more powerful if the data these assessments produce are meaningful and accurately reflect student mastery of the academic skills we know matter for success beyond high school.

School and district support practices: Information from high-quality assessments can yield more accurate information for state-level accountability systems. This information can help state policymakers determine what districts or schools are in the greatest need of support or reform. Such information could guide the investment of financial or human resources, promoting more equitable education practices.

High-quality assessments provide students, parents, teachers, school and district leaders, and policymakers with critical information that supports their efforts toward improved instruction and student learning. While Tennessee uses data from assessments to make important decisions at the classroom, school, district, and state level, current TCAP assessments lack full alignment to Tennessee's State Standards. It is critically important for Tennessee to implement a high-quality assessment that yields an accurate measure of students' progress toward mastery of Tennessee's standards.

History of Standards-Based Reform and Standardized Assessments

Standards-based reform emerged in the late 1980s and 1990s, promoting key shifts in policy with the ultimate goal of improving student learning and narrowing long-standing achievement gaps. The central premise of standards-based reform is that education policies will only be effective if all policies are aligned around a common set of goals. Specific academic standards are at the heart of standards-based reform, establishing what students are supposed to know and be able to do in core academic subjects. When coupled with high-quality assessment and accountability systems, these standards are meant to ensure that all students have an opportunity to learn key content in the core academic subjects.¹⁵ The key components of a standards-based reform model are:

Clear, ambitious academic expectations for students as established through a set of academic standards that define what students should know and be able to do.

The alignment of key components of the education system, such as teacher pre-service and in-service education, to improve instruction of those academic expectations and promote student mastery.

The use of standardized assessments to monitor student progress on those academic standards and to guide and inform instructional decisions.

Decentralization of decisions around curriculum and instruction to school districts and schools.

Accountability systems that reward or sanction schools, teachers, or students based on their performance or growth on standardized assessments to encourage effort toward implementation of the academic standards.¹⁶

The passage of the No Child Left Behind Act (NCLB) in 2002 built on the standards-based reform movement that had already spread across the states throughout the 1990s.¹⁷ NCLB, the most recent reauthorization of the Elementary and Secondary Education Act, required states to adopt academic standards and implement standardized assessments that measured student progress on those standards. NCLB increased the amount of testing in most states, requiring standardized assessments to be administered to students annually in grades 3-8 and at least once in grades 10-12. NCLB also increased the importance of decisions made based on information gleaned from those assessments.

Results from these standardized assessments were used to identify schools that were failing to make progress toward proficiency on academic standards and were tied to consequences that affected the way schools were governed and required to spend funding.¹⁸ The consequences attached to standardized assessments increased the influence assessments had on instruction in classrooms, making it increasingly important for standardized assessments to be high quality and aligned to states' academic standards. Even so, research has consistently questioned the quality of assessments implemented over the past decade and the impact they have had on instruction. The following section will outline primary concerns surrounding the state of standardized assessments implemented since 2002 and the impact these assessments had on instruction.

The State of Standardized Assessments

Standardized assessments were a foundational component of NCLB and continue to shape standards-based reform policies today. This is true in all states, including Tennessee, where data from standardized assessments inform important decisions related to school and teacher improvement practices. In Tennessee, standardized assessments were first implemented in 1988 through TCAP, a series of achievement tests to measure student progress on Tennessee's academic standards. In the 2001-02 school year, Tennessee expanded TCAP to comply with NCLB, requiring assessments in grades 3-12 in English language arts, math, science, and social studies.¹⁹

Achievement tests and End of Course exams are the centerpiece of Tennessee's accountability system, which uses students' scores on standardized assessments as a central measurement of school and teacher performance.²⁰ In Tennessee, data from standardized assessments affect teacher evaluations, students' course grades, and the accountability system's labeling of schools as priority schools, focus schools, or reward schools. Teachers, school leaders, and district leaders use data from standardized assessments to make important instructional and organizational decisions. Because of these multiple uses, it has become increasingly important for assessments to produce high-quality data that provide a true reflection of student learning in classrooms.

Over the past several years, states have expanded their assessment systems, both to gather important information about student achievement and to meet the requirements established in NCLB. As a result, many states abandoned higher-cost assessments that required students to write, research, or perform extended problem-solving.²¹ Previous assessments were often replaced with multiple choice-tests that were more cost-effective to implement and easy to administer and score.²² Despite required investigations of alignment, peer-reviewed research indicated that some of these assessments were misaligned with academic standards both in terms of content and rigor.²³ While the accountability and assessment requirements led to some improvements in student outcomes,²⁴ the state of assessments used over the last decade raised several concerns about standardized assessment and its impact on instruction and student learning.

A leading concern was that tests did not adequately cover the content of states' academic standards and were therefore not an accurate representation of students' progress on those standards.²⁵ Research has shown that many states sampled the same content on standardized assessments every year, often resulting in teachers narrowing their instruction to the topics that were most heavily represented on these assessments. Another consequence of the predictability of tests was test score inflation, the tendency for students' scores on a test to increase when there hasn't been an actual change in student knowledge. In this sense, an increase in student achievement may actually be reflective of student preparedness for a particular assessment rather than actual understanding of the academic standards. When this occurs, the intended purpose of assessments is eroded.²⁶

Additionally, research points to the tendency of teachers to not only teach students the content represented on assessments, but also to dedicate instructional time to teaching students strategies that would help them successfully navigate the format of assessments. While preparing students to succeed on assessments can yield positive outcomes if the assessments are high quality and aligned to academic standards, over the past decade this often meant teaching to the multiple-choice format of assessments.²⁷

Recent research on other states' assessments calls into question whether the assessments used over the last decade accurately measure student mastery of academic standards.²⁸ These analyses have found gaps in alignment between state standards and state assessments, both in terms of the content covered as well as in the level of cognitive demand of testing items.²⁹

Cognitive demand represents the depth of thought students are expected to engage with when completing a task. These analyses found that on average, less than 60 percent of the content found on state assessments was aligned with the expectations set in states' grade-level standards.³⁰ Additionally, these analyses found that 15 percent of items in math assessments and 26 percent of items in English language arts and reading assessments were misaligned due to different levels of cognitive demand. In other words, academic standards often required higher-level thinking skills and a conceptual understanding of content, while state tests overemphasized memorization and procedural skills.³¹ Research has found that this misalignment often leads to a narrowing of instruction to tested topics and reduced instruction on rarely tested skills such as writing, oral communication, extended problem-solving, and research and investigation.³²

While this research is instructive, it is also important to understand assessment issues that specifically pertain to Tennessee's assessment system. Since the implementation of standardized assessments in Tennessee, state assessments have been criticized for:

Lack of alignment between academic standards and standardized assessments both in terms of content covered on standardized assessments and the level of cognitive demand of testing items.

An exclusive reliance on multiple-choice items, limiting students exposure to extended-response items.

Lack of alignment between the major components of the accountability system, including standards and assessments.³³

The TCAP Achievement tests and End of Course exams Tennessee implemented after transitioning to the Tennessee Diploma Project standards continued to rely exclusively on multiple-choice items. While Tennessee has made large strides in improving the rigor and quality of its academic standards, the current TCAP Achievement tests and End of Course exams were not written to assess these standards. This misalignment sends mixed signals to teachers and students about what is expected to be taught and learned in classrooms across the state. These issues highlight the pressing need for the implementation of a high-quality, aligned assessment that will match the rigor of Tennessee's standards in English language arts and math.

The Need for High-Quality Assessments

Tennessee is at a critical crossroads in its efforts to prepare students for success in college and career. The state took an important step in 2010 when it adopted new standards in English language arts and math. Research indicates that Tennessee's current standards are as strong as or stronger than standards previously implemented in other states.³⁴ These standards focus on fewer topics in greater depth, have greater coherence, and require more critical thinking skills and conceptual understanding than previous standards. For these reasons, these standards are a vast improvement from Tennessee's earlier standards, which were found to be among the lowest in the country.³⁵ Furthermore, they are explicitly designed to align with expectations for college and career.

After two decades of standards-based reform, research finds that in order for Tennessee's State Standards to transform instruction and improve student learning, they must be supported by a high-quality, aligned assessment.³⁶ When standards and assessments are misaligned, teachers make instructional choices based on what is assessed rather than what the academic standards require. Tennessee now faces the critical responsibility of implementing an assessment that aligns with the rigor and quality of the standards Tennessee adopted in English language arts and mathematics. To fully realize the potential these standards have for improved student learning in Tennessee, it is imperative for the state to implement an assessment that aligns with the depth, breadth, and rigor of Tennessee's State Standards in English language arts and math.

In 2014, the General Assembly passed legislation that delayed the implementation of an aligned, college and career ready assessment, which was scheduled to replace the current TCAP assessment in English language arts and math in spring 2015. This piece of legislation called for a request for proposal (RFP) for a new assessment system that would be selected through a competitive bidding process, managed by Tennessee's Procurement Office.³⁷ In October 2014, the RFP was awarded to Measurement Inc. to develop Tennessee's new English language arts and math assessments, which will be called TNReady.

TNReady is scheduled to be implemented for the first time in the 2015-16 school year.³⁸

Recent research on assessments has identified several key characteristics to guide states' selection and implementation of college and career ready assessments. In general, research converges on the fact that assessments should inform continuous improvement in instruction and student learning and should provide useful feedback to students, parents, teachers, school and district leaders, the public, and policymakers. To achieve these goals, states must implement new assessments that measure the critical skills students need to succeed in college and career. As Tennessee implements the TNReady Assessment, it is essential for the selected assessment to align with the following evidence-based criteria:

- Assessments are aligned to standards.
- Assessments ensure technical quality.
- Assessments produce results comparable to those in other states.
- Assessments provide accessibility for all students.
- Assessments provide instructionally useful data.
- Assessments follow best practices in test administration.

This section will provide a brief overview of these criteria, defining each and outlining what evidence should be used to ensure alignment.

Assessments are aligned to Tennessee's standards in English language arts and mathematics.

Alignment can be defined as "the degree to which expectations [i.e. standards] and assessments are in agreement and serve in conjunction with one another to guide the system toward students learning what they are expected to know and do."³⁹ It is essential for academic standards and standardized assessments to align in order for them to drive improvements in instruction and learning. The Center for American Progress recently released a report that compared NCLB-era standards to the Common Core State Standards in terms of their cognitive demand emphasis. The report found that previous standards in both mathematics and English language arts were more focused on procedural and rote content than the Common Core State Standards. For instance in eighth-grade math, approximately 68 percent of the content in a typical state's previous standards was focused on procedures or memorization. In contrast, just 48 percent of the Common Core State Standards at that grade were focused on these skills. Similarly, in eighth-grade English language arts, 38 percent of previous state standards focused on lower-level skills, while only 16 percent of the Common Core State Standards focused on lower-level skills.⁴⁰

Because Tennessee's new standards require students to engage with higher-level thinking and to develop greater depth of content knowledge, it is essential for new assessments to assess the range of cognitive demand present in the standards. This should include a test of basic skills but should also assess skills at higher levels of cognitive demand, such as students' ability to research topics, analyze and synthesize information, and solve complex problems. Tennessee's State Standards in English language arts require students to cite evidence from texts, to comprehend and analyze informational or non-fiction texts, and to work with texts with adequate text complexity. All of these skills and competencies must be represented on standardized assessments in order to accurately measure student mastery of academic standards. These skills and competencies cannot be assessed exclusively through multiple-choice items but instead must be assessed through a combination of item formats, including multiple choice, short response, and extended response.⁴¹

Tennessee's State Standards in English language arts also call for the development of speaking and listening skills. While these skills may not be assessed on the selected assessment initially, it is important for assessment developers to have plans that will allow these standards to be assessed in the future. If these skills are underrepresented on assessments, it is likely that they will be underrepresented in a teacher's instruction.

To improve alignment, standardized assessments must also cover the full domain of academic standards. Over the past decade, many assessments failed to cover the full range of standards or did not assess the standards in a balanced way. This often resulted in a narrowing of instruction to the content that was most frequently assessed or most heavily represented on assessments.⁴² For this reason, it is essential to ensure that assessments cover the full range of content in the standards in a balanced way. Ideally, the content of the assessments should be such that, over time and across test forms, it precisely mirrors the content expectations in the standards.

To ensure Tennessee’s assessment is adequately aligned to standards, both in terms of cognitive demand and content coverage, it would be ideal for evidence from multiple research-based alignment methods to be provided. If evidence from multiple alignment methods is unavailable, it is imperative for evidence from at least one rigorous alignment study to be provided. There is no single best approach to measuring alignment and different alignment methods can produce different results. For this reason, it is important to use multiple alignment methods to understand how well aligned the selected assessment is to Tennessee’s State Standards. Table 2 describes three different methods that can be applied to measure how well an assessment aligns to academic standards.

<i>Methods of Measuring Alignment</i>	
Webb	<p>The Webb process uses four criteria to judge the alignment between standards and assessments:</p> <p>Categorical concurrence provides a general indication of whether standards and assessment cover the same content.</p> <p>Depth of knowledge consistency indicates whether assessment items are at the same levels of cognitive demand as is present in the standards.</p> <p>Range of knowledge measures whether standards and assessments cover a similar range of concepts.</p> <p>Balance of representation measures how often one standard is assessed as compared to other standards.⁴³</p>
Achieve	<p>The Achieve alignment method reports on five criteria:⁴⁴</p> <p>Content centrality looks at the degree to which the content of test items and the content of the standards align.</p> <p>Performance centrality measures the degree to which the cognitive demand of a test item matches the cognitive demand required on the standards.</p> <p>Challenge evaluates how well items require students to master challenging subject matter.</p> <p>Balance measures how equally the standards are covered on the assessment.</p> <p>Range measures how well assessments cover the range of standards.⁴⁵</p>
Surveys of Enacted Curriculum (SEC)	<p>The SEC process uses a “topic by cognitive demand” matrix. Reviewers categorize standards and assessments onto the matrix based on the topics covered and levels of cognitive demand in the standards and assessment. The degree of alignment is determined by looking at the degree to which the different matrices overlap. This technique can also be used to examine the content and alignment of curriculum materials or teachers’ instruction.⁴⁶</p>

Table 2

Each of these alignment methods has strengths and weaknesses. For example, the Webb approach is seen as providing the most detailed quantitative indication of alignment, the Achieve approach is seen as providing the most detailed qualitative indication of alignment, and the SEC approach is the only approach of the three that also considers alignment of instruction and curriculum with standards and assessments.⁴⁷ In order to gain a more accurate measure of alignment between Tennessee’s standards and assessments, a method could be developed that combines the strengths of these different approaches and that is specifically designed to measure an assessment’s alignment to Tennessee’s current standards.

Assessments ensure technical quality.

The assessment should be valid, reliable, and fair. In terms of validity, at the most basic level, the assessment should be a good representation of the knowledge and skills it intends to measure. A high-quality alignment study like those in the previous section should ensure adequate content validity.⁴⁸ Beyond content validity, since standardized assessments serve a variety

of purposes in Tennessee, including but not limited to measuring student performance, teaching effectiveness, and school effectiveness, it is essential for the assessment to produce results that are valid for all of these purposes. This means that each decision made using test scores should be justified by clear arguments, and that those arguments should be evaluated using assessment data.⁴⁹

Use of test scores should also be fair for individual schools and teachers, ensuring that schools or teachers are not penalized for student factors that are outside of their control.⁵⁰ An examination of fairness should follow the extensive fairness guidelines laid out in the recently revised *Standards for Educational and Psychological Testing*. In particular, if a test or a particular use of a test adversely impacts certain groups (e.g., schools serving more low-income students), this adverse impact should be adequately explained and justified using evidence from the assessments. To the extent that tests or accountability uses of tests are unfair, it may lead to differential effects of standards and tests that cause disproportionate harm to some groups over others.⁵¹

In terms of reliability, the assessment should provide precise estimates of students' mastery of Tennessee's academic standards, including precise estimates of performance for students at very high and very low levels of achievement.⁵² Many assessments administered over the last decade failed to provide accurate measures of performance for students of very high and very low ability levels. Because Tennessee's accountability system focuses in large part on student growth, it is especially important that the chosen assessment can provide accurate measures of performance for students at all points on the achievement distribution. Validity, reliability, and fairness evidence should be shared with educators and the public to improve individuals' understanding of and trust in the data assessments produce.

Assessments produce results comparable to those in other states.

One challenge that came out of NCLB-era reforms was variation that existed across states in terms of their academic and proficiency standards. During the NCLB era, Tennessee's standards for proficiency were lower than those of other states and lower than national proficiency levels set on NAEP.⁵³ These differences in proficiency standards had implications for Tennessee students' competitiveness in the workforce and students' performance when they transitioned to education systems in different states. For instance, when students achieving proficiency in Tennessee moved to other states during their educational career, they often would find themselves academically behind their peers. In the workforce, students who lived in states with higher proficiency standards may have been more adequately prepared with the skills necessary to succeed in the workforce than many students in Tennessee schools.

Now that Tennessee has adopted a nationally benchmarked set of academic standards in English language arts and math, it is imperative for Tennessee to adopt an aligned assessment that produces results that can be compared with those in other states. Proficiency standards on the selected assessment should be comparable to the proficiency standards set in other states and to national proficiency standards. While NAEP provides policymakers with critical feedback on the state's performance relative to other states, NAEP is not administered on an annual basis, is only administered in target grades to a sample of Tennessee students, and is not intended to be aligned with Tennessee's or any other state's standards. Having a standardized assessment that is nationally benchmarked allows policymakers to compare Tennessee's progress to progress in other states on a yearly basis, learning from best practices in states facing similar challenges.

In 2013, Tennessee's performance on NAEP indicated that Tennessee's students are the fastest-improving in the nation in math and reading.⁵⁴ This data gave policymakers insight into the impact recent reforms are having on student outcomes. Results on new tests could give true estimates of Tennessee's progress so the state can continue to monitor its success in meeting new standards. An assessment that produces results that are comparable to those in other states would also help parents and students to understand student performance relative to students in other states. Students and their parents would receive a more accurate indicator of their competitiveness in the national job market and their progress toward college and career readiness.

Assessments should provide accessibility for all students.

Assessments should follow the principles of universal design and sound testing practice to ensure that the design and format of the assessment does not impact student performance. In other words, the assessment should be designed in such a way that ensures that a student's performance on the assessment is reflective of their competency on the concepts assessed.

If an assessment is technology-based, it is important to ensure that the assessment provides an accurate measure of students' mastery of academic standards, rather than measuring students' ability to navigate a technology-based assessment. Districts

and schools should work to provide students with the skills they need to succeed on a technology-based assessment, such as keyboarding skills. In some cases, it may be important for the testing vendor to offer both technology-based and paper-and-pencil formats of assessments.

Assessments should also offer appropriate accommodations for students with disabilities, as well as students with limited English proficiency. It is important to ensure that the accommodations offered do not threaten the validity of the assessment for certain groups of students.⁵⁵ Decisions about accessibility should be based on the needs of individual students, and accommodations should be made only where necessary.

Assessments should provide instructionally useful data.

Assessments should provide students, parents, and teachers with reports on performance that can inform student support practices and instructional improvement. Reports should be easy for diverse audiences to understand, providing simple feedback on students' progress toward mastery of academic standards. This requires more detail than simple indicators of student proficiency and should include information about students' understanding of specific concepts and development of important skills. Finally, assessment reports should focus on students' progress toward college and career readiness.⁵⁶ These reports should be shared with parents in a timely manner and should provide parents with indicators of how best to support their student's progress toward success in college and career.

For maximum benefit to instruction, assessment data must be shared with teachers in a timely manner. Assessment reports should also provide transparent and detailed information on test items so that teachers are able to identify specific areas of instructional strength and areas for improvement. This transparency and specificity will provide teachers with greater insight into students' specific areas of need, allowing greater differentiation of instruction to meet student needs.

Assessments should follow best practices in test administration and data security.

The way tests are administered should ensure technical quality, security, and integrity of their results. All testing items and materials should be stored securely prior to, during, and after test administration. It is also essential for the data from assessments to adhere to best practices in data security, aligning with state and federal policies related to student data privacy. In 2014, the Tennessee General Assembly passed legislation that increased protections for student data privacy. This included strict regulations in contracts with third-party providers. The third-party provider who administers standardized assessments must comply with this updated legislation and ensure the protection of de-identified student assessment data.⁵⁷

Conclusion

Since 2007, Tennessee has invested in efforts to ensure Tennessee students graduate from high school prepared for college and the workforce. These efforts include a transition to a set of college and career ready academic standards that support higher expectations for student learning across the state. While academic standards set expectations about what students should know and be able to do, assessments make those expectations concrete, providing teachers and students with measurable goals for instruction and learning. Recent research on other states' assessments calls into question whether Tennessee's current assessments accurately measure student learning.⁵⁸

This paper established a set of evidence-based criteria for high-quality assessments. These criteria should be used to guide the development and implementation of the new TNReady assessment. While it would be ideal for an assessment to align with all of the above criteria, it is also important to acknowledge that this task is a challenging one. To have an assessment that encompasses all of the above criteria is a goal to continually strive toward, but one that may take several years to accomplish. It is important to recognize that an assessment that takes significant steps toward these criteria will be an improvement upon Tennessee's current Achievement tests and End of Course exams. For this reason, it will be important to closely examine the TNReady assessment, noting areas where improvements have been made as compared to Tennessee's old Achievement tests and End of Course exams and areas where the assessment could still be strengthened.

Moving forward, education partners in Tennessee should evaluate the TNReady assessment based on the above criteria. Table 3 outlines a list of next steps the Tennessee Department of Education and its partners should take to ensure the TNReady assessment aligns with the above criteria.

<i>Criterion</i>	<i>Next Steps</i>
✓ Assessments are aligned to standards	Collect rigorous and specific evidence of alignment between the new assessment and Tennessee’s State Standards. This evidence must be the result of a research-based method of measuring alignment.
✓ Assessments ensure technical quality	Collect rigorous and specific evidence that ensures TNReady produces valid and reliable results for all of its intended purposes. Representatives from higher education institutions should participate in this process, ensuring that proficiency standards are a true measure of college readiness.
✓ Assessments produce results comparable to those in other states	Collect evidence that the Tennessee Department of Education established proficiency standards that align with proficiency standards from national assessments and other state assessments. These proficiency standards should also indicate students’ progress toward college and career readiness.
✓ Assessments provide accessibility for all students	Collect evidence that indicates TNReady was designed to provide accessibility for all students.
✓ Assessments provide instructionally useful data	Collect evidence that indicates that assessment reports will be provided in a timely fashion and can inform instruction. It would be ideal for the Tennessee Department of Education to conduct user testing with Tennessee educators to ensure the reports provide clear and concise information that teachers can use to improve instruction and meet student needs.
✓ Assessments follow best practices in test administration	Collect evidence from the Tennessee Department of Education that documents the plans for test and data security. This evidence should ensure that data security practices meet the requirements of Tennessee law.

Table 3

In addition to the action steps listed above, Tennessee education partners should support the Tennessee Department of Education as a transition is made to the new assessment. The following list describes additional ways education partners throughout the state can work to ensure teachers and students have the support they need to successfully transition to a new assessment:

The **State Collaborative on Reforming Education (SCORE)** should release a series of follow-up reports that evaluate Tennessee’s new assessment against the above criteria on an annual basis for the next four years. This report should involve assessment experts from higher education, highlight strengths of the assessment, and explore opportunities for continuous improvement to the assessment.

The **Tennessee Department of Education and Centers of Regional Excellence (CORE)** should provide high-quality professional learning opportunities for teachers, principals, and district leaders on the new assessment.

The **Expect More, Achieve More Coalition** and its partners should expand its statewide communications campaign that engages and informs parents and the public on the new assessment. This communications campaign should provide parents and the public with information on timing of the assessment, sample assessment items, accessibility options, and guidance on how to read data reports from the assessment.

High-quality assessments should accelerate students’ development of the skills and competencies the current workforce demands, guide the instruction of teachers, and help students to measure their progress on standards.⁵⁹ In order to ensure students in Tennessee are progressing toward college and career readiness, a high-quality assessment, aligned to Tennessee’s State Standards must be in place.⁶⁰ If Tennessee’s State Standards in English language arts and math are not supported with a high-quality, aligned assessment system, it is unlikely they will achieve their intended objective of helping improve student mastery of the key content and skills needed for success in college and career. For this reason, Tennessee must ensure that

the TNReady assessment is implemented in the 2015-16 school year and that it provides teachers, parents, school and district leaders, and policymakers with the information they need to support student learning.

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