Introduction

In 2019, several legislators expressed interest in understanding more about the development of TN Ready test questions and their public release after testing is completed. TN Ready tests (the most recent version of the state's general education assessments in the Tennessee Comprehensive Assessment Program, or TCAP) encompass the required state standardized achievement tests in grades 3 through 8, and the end-of-course tests for selected high school courses.

Background

Tennessee's annual statewide testing began in 1983, in order to gather information on the overall academic progress of its elementary and secondary students. The state adopted its TCAP standardized testing program in 1988, before the federal No Child Left Behind Act of 2001 began requiring states to test students annually. The current testing requirements that states must meet to qualify for federal funds under the current federal education law, the Every Student Succeeds Act (ESSA) of 2015, include annual statewide assessments of math and English/language arts (ELA) in grades 3 through 8 and once in high school, and science assessments at least once each in elementary, middle, and high school grades. Tennessee's testing exceeds the federal requirements: the state tests students in science in every grade, 3 through 8, administers social studies tests in grades 6 through 8, and tests high school students twice in ELA, three times in math, and once in social studies, as well as the one required science assessment.[A]

Both Tennessee and federal laws require student achievement data from annual statewide tests to be used in the state accountability system for local schools and districts, in combination with other academic and nonacademic indicators to measure overall school and district performance.[1] Tennessee also requires TCAP data to be factored into teachers' annual evaluations for those teachers in tested grades and subjects; requires local school districts to have policies that include TCAP scores as at least 10 percent of students' spring semester class grades in grades 6 through 8; and authorizes districts to set grade policies for incorporating TCAP scores in grades 3 through 5, and 9 through 12.[2]

Statewide standardized testing of elementary and secondary students is a large undertaking, which states typically manage through contracted for-profit and nonprofit vendors. Designing and administering standardized tests involves numerous steps including:

- creating test and item specifications for each grade and subject that specify the number of questions needed to assess the standards and the question formats to be used, such as questions based on a reading passage or a math problem, questions with selected responses (e.g., multiple choice, true-false, matching), or questions needing a constructed response (e.g., short answer, essay, calculations),
- drafting potential test questions and problems (collectively referred to as *items*),
- reviewing test items for content appropriate to the academic standard being tested, and for bias and potentially sensitive issues,

---

[A] Tennessee's social studies testing for grades 3 through 5 was paused in 2019-20 based on feedback from local districts and the State Board of Education to reducing testing time.

- preparing test forms using items already approved plus additional items ready for field-testing,
- printing paper copies of the test forms and/or loading them on digital testing platforms,
- delivering tests to schools (via paper shipments or deploying software) and administration of tests to students,
- scoring and reporting the test results, and
- technical analysis of results in order to begin preparation for the following year's tests and to submit for federally mandated review to ensure validity and reliability.

Some states contract with one vendor to perform all these steps for all tests; some contract with multiple vendors, splitting the duties by subject or grade levels (one vendor performs all steps for high school tests or one vendor handles the math and science tests); others contract with multiple vendors by type of duties.

In recent years, Tennessee has contracted with two primary vendors, each for separate testing responsibilities. Specifically, during the 2019-20 school year, Tennessee had contracts with NCS Pearson, Inc. (Pearson) for test administration and with Educational Testing Service (ETS) for test development.[B]

The Pearson contract covers the two-year period of July 2019 through June 2021, with an option to renew through June 30, 2024. The 2019-20 total contract liability is $20.1 million (59 percent state funds and 41 percent federal funds) for delivering, administering, and scoring the assessment and reporting state assessment results.

The original ETS contract for developing test items and test forms for the state's science and social studies assessments covered the five-year period of September 2015 through September 2020. The contract was amended in June 2018, and again in July 2019, expanding ETS' duties to include the development of math and ELA test items, test forms, and supporting materials and increasing contract liability to $9 million annually (78 percent state funds and 22 percent federal funds) for both 2018-19 and 2019-20.

In preparation for the ETS contract ending in September 2020, the state posted a new request for proposal (RFP #33111-00320) for these services on February 24, 2020. As of July 2020, the Tennessee Department of Education (TDOE or the department) had awarded the new test development contract to Pearson.

The focus of this brief is specifically on the development of test items for Tennessee's TCAP (TN Ready) assessments. Other aspects of the state testing program, such as the administration of the test on paper or online, scoring students' responses, and reporting test results, are outside the scope of this project. Also, the focus throughout is on the TCAP general education assessments taken by the majority of Tennessee students in grades 3 through 11. Other components of TCAP are not addressed. These include Tennessee's optional grade 2 math and English language arts (ELA) tests, the required statewide alternative assessments for students with the most significant cognitive disabilities, and the required assessments to measure the progress of English learner (EL) students.[C]

[B] NCS Pearson, Inc. is a Minnesota-based subsidiary of its London-based parent company, Pearson Education. Educational Testing Service is a New Jersey-based nonprofit.
[C] Alternative assessments are administered to about 7,000 Tennessee students with the most significant disabilities. The Multi-state Alternative Assessment (MSAA) are math and ELA tests used in grades 3 through 8, and grade 11. TDOE contracts with its test development vendor to create alternative assessments for science and social studies, as well as for the optional grade 2 math and ELA assessments. To assess English learners' proficiency, Tennessee uses EL assessments from WIDA, a multi-state consortium.

Question 1: What is the process for developing tests and test items in Tennessee?

The process for developing the TN Ready tests begins with establishing the test and item specifications based on state academic standards. TDOE works in collaboration with the test development vendor (ETS in 2019-20 and Pearson as of July 2020), to determine the test specifications, such as the key standards to measure, number of questions to assess the depth of students' knowledge on each standard, and total testing time. Test blueprints summarize these specifications, as shown in Exhibit 1. Alignment study committees, which include local Tennessee educators, are convened every three to five years to evaluate the content and rigor of subject area tests against the state academic standards.[D] The alignment committees are part of federally required reviews to ensure test validity and reliability and to maintain eligibility for federal funds. TDOE and the test development vendor also create the specifications for individual test items, such as the type of item (such as selected or constructed response) level of difficulty, and other factors.

Exhibit 1: Excerpt from 2018-19 TN Ready assessment blueprint, Grade 5, English language arts

IDEAL PERCENTAGE OF ITEMS	IDEAL NUMBER OF ITEMS	SUBSCORE CATEGORIES AND STANDARDS	
32-34%	9-16	**Reading: Literature**	
		5.RL.KID.1	**Key Ideas and Details**
		5.RL.KID.2	**Key Ideas and Details**
		5.RL.KID.3	**Key Ideas and Details**
		5.RL.CS.5	**Craft and Structure**
		5.RL.CS.6	**Craft and Structure**
		5.RL.IKI.7	**Integration of Knowledge and Ideas**
		5.RL.IKI.9	**Integration of Knowledge and Ideas**
17-18%	5-8	**Reading: Vocabulary**	
		5.RL.CS.4	**Craft and Structure**
		5.RI.CS.4	**Craft and Structure**
		5.FL.VA.7a	**Vocabulary Acquisition**
		5.FL.VA.7b	**Vocabulary Acquisition**
2-4%	1	**Written Expression**	
		5.W.TTP.1	**Text Types and Protocol**
		5.W.TTP.2	**Text Types and Protocol**
		5.W.TTP.3	**Text Types and Protocol**

Source: Tennessee Department of Education.

[D] Alignment study committees in several content areas were scheduled to convene in May 2020 but were postponed until 2021.

The vendor then uses the specifications to begin creating test items and identify sources for reading passages. A test development vendor may rely on both staff and contracted item writers to create test items. Current and former teachers, including Tennessee educators, are among those that ETS contracts with. All test items go through the same process but are not tagged to track which writers developed the items ultimately approved for Tennessee's standardized tests. TDOE subject area specialists review the test items and passages created to ensure that they meet the approved specifications. Teachers participating in the TN Ready Ambassador program may also assist in checking items against the specifications. (See more about the TN Ready Ambassadors at the end of this section.)

Passage and item reviews

Once the test development vendor has sourced potential reading passages (most of which are for ELA tests), committees of Tennessee classroom teachers and other educators, selected by TDOE through an application process, review the potential passages to determine that they are academically appropriate for the grade level, are sensitive to all students and free of bias, and reflect a variety of topics and styles aligned with state academic standards. After reading passages are approved, typically in the fall, by the educator committees, as well as by TDOE staff, the vendor then develops ELA test items based on those passages. Those passage-based items, and test items for all other subject areas, will be ready for item review the following summer.

Item review committees, also comprising Tennessee educators selected by TDOE through an in-depth application process, are organized by each tested subject area and grade level. The committees review test items and any associated graphics across several parameters.[E] *Content review* committees examine items for appropriate content and alignment to standards, and to confirm that answer choices include only one possible correct answer. *Bias review* committees review items for bias and for sensitivity to students' differing backgrounds in terms of gender, religion, ethnicity, culture, age, socioeconomic status, and rural/urban environments. Bias and sensitivity reviews also consider the design of test items (known as universal design) to maximize accessibility, allowing the widest possible range of students to participate, with minimal accommodations.[F]

Item review committees can decide to accept items, suggest revisions to make items acceptable, or reject items. After the committees provide item and passage feedback, the vendor and TDOE reconcile the teachers' feedback from both content reviews and bias reviews and complete final edits to the test items.

How Tennessee teachers help develop TCAP test items

Teachers and other educators in the state's public school districts helped develop items for the statewide tests through various tasks in 2018-19.

- 416 educators served on item review committees for two to three days each, providing feedback as to whether drafted test items are aligned to standards, free from bias, and meet standards for sensitivity and universal design. Review committees can decide to accept items, suggest revisions to make items acceptable, or reject items.

- 37 educators, serving as TCAP Ambassadors (local educators who advise and communicate on state testing) assisted with reviewing reading passages, which are used primarily in ELA tests. (See more about the TCAP Ambassador program at the end of this section.)

Tennessee educators assisted with other test activities beyond item development, including range finding and standard setting, as described in the next section. See Appendix A for a full listing of test activity participation by Tennessee teachers and other educators.

Source: Tennessee Department of Education.

Teachers typically apply early in the year for item review committees that meet in summer, when schools are out of session. Committees may meet for several days and teachers are paid a stipend and for travel expenses; June 2019 committee participants received stipends of $150 per day. Passage review participant numbers are smaller because

---

[E] Sight Review Committees are also convened as part of the development process for Braille test forms.
[F] Accessibility considerations are also known as universal design principles and include, for example, simplicity, such as making answer sheets intuitively understandable to complete correctly and directions understandable to those with a wide range of literacy skills; and perceptibility, such as using type fonts, line length, and spacing that maximize legibility of printed material.

they deal only with ELA tests. Because they meet during fall when school is in session, the vendor may pay their districts for classroom substitutes rather than paying teachers a stipend.

In selecting educator reviewers, TDOE first assesses the content area expertise and grade level experience of applicants. TDOE also aims for committee diversity based on gender, ethnicity, region, and urban/rural locale. In 2018-19, about 416 Tennessee educators, representing about 75 percent of local school districts, participated in item reviews, and an estimated 224 educators were expected to be selected for participation in item reviews during the summer of 2020.[G] In 2018-19, passage reviews for ELA tests were conducted with that year's first cohort of TCAP Ambassadors; the following year, more formal passage review committees were created, with 36 educators participating, representing about 20 percent of local school districts plus the LEAD charter schools. (See Appendix A for a full listing of test activity participation by Tennessee teachers and other educators.)

Once test items are approved by TDOE, they are field-tested. Field-test items are embedded into *operational test forms*, the active tests that are administered to students and scored.[H] (Field-test questions are not counted in students' scores or used for any accountability purposes.) Multiple versions of a standard operational test form are created to include different sets of field-test questions. For the 2018-19 TCAP, 14 versions of the grade 3 through 8 achievement tests were developed for most subjects and grades; high school end-of-course tests varied from two to 15 versions, depending on the number of students enrolled in the courses. A minimum of 1,500 to 3,000 student responses are typically collected to analyze each field-test item.

After test item development
Data from students' responses to the field-test items are collected and analyzed by TDOE and both the test administration and test development vendors. This technical data review is to analyze how well a test item "works" as it should to accurately assess students' knowledge and skills. The analysis is used to determine if field-test items meet criteria as valid test items and are acceptable to use on future operational tests, if further revision and testing is needed, or if the items should be eliminated.

Another process that follows field-testing is called "range-finding," and is specific to constructed response items (writing prompts) in ELA tests. Unlike multiple choice questions that require only an answer key to score, scoring student essays requires a guide (or rubric) to help graders identify the quality range of papers that should earn a top score of 4, the next range of papers that would qualify for a score of 3, and so on. Clear examples of student responses at each score level are selected as "anchor" papers. Committees of Tennessee educators are selected annually by TDOE to serve on range-finding committees in a process similar to selecting educators for passage and item review committees. Because new writing prompts are developed each year, range-finding also occurs each year. In 2018-19, approximately 70 Tennessee educators participated in the range-finding process. In 2019-20, 63 teachers and other educators representing 41 local school districts (29 percent) participated.

Once field-tested items are approved, they become part of the *item bank*, the repository of approved items for operational tests, that are counted in students' scores. The test development vendor constructs the operational test forms, using approved items from the item bank, and adding in the next set of field-test items, which are not operational. End-of-course tests for high school courses are typically created first because high schools using block scheduling have a fall TN Ready test window. TDOE reviews the final test forms before they are transmitted to the test administration vendor to be printed or loaded onto the testing platform and delivered to schools and students.

[G] With the cancellation of TCAP testing in 2020 due to the coronavirus (COVID-19), the department planned to reschedule the item review committees as virtual meetings during the 2020-21 school year.

[H] In past years, stand-alone field-tests have been conducted, using a test form comprising only items for field-testing. That practice was discontinued in 2018 for at least two years. TDOE does not have plans to return to standalone field-tests.

Tests are administered and scored by the test administration vendor, which also has primary responsibility for performing psychometric analysis to calculate statistics on individual test items. Those statistics are shared with the test development vendor, which uses the data to compile the next test. The administration vendor also ensures that the test is properly scaled so that students' scores are comparable from year to year. (See "What is psychometrics?")

What is psychometrics?

Psychometrics is a field of study that deals with the design and interpretation of tests that measure various psychological qualities, including state standardized tests of students' knowledge and abilities related to academic standards. Psychometric analysis is used to evaluate test validity (does the test actually measure students' understanding?) and reliability (do students with similar levels of understanding produce consistent scores across different administrations of the test?).

Specifically, psychometric analysis uses various statistical techniques to determine the difficulty of each test item, how well an item distinguishes among students with a strong versus weak understanding of the concept being tested, and whether there is bias in any of the answer choices. Psychometrics is also applied to ensure that the test forms used from one year to another maintain a comparable level of difficulty, a process known as equating. Repeating linking items – specific test items with known psychometric measurements – from one year's test to the next helps scale each year's test so that scores from one year to the next are equivalent and can be used to assess changes over time. (See more about linking items at Question 3.)

If the test is a new assessment for a grade, subject, or revised set of state standards, the test questions, design, and raw score results are evaluated to determine whether the assessment accurately measures what it is intended to. This process, known as standard-setting, is used to set the score ranges (or "cut scores") that will identify students as achieving one of four performance levels: mastered, on track, approaching, or below, in relation to academic grade level standards.[1] The administration vendor typically facilitates standard-setting, which is carried out by committees that include Tennessee district teachers and administrators, as well as staff of TDOE and both the administration and test development vendors. The most recent standard-setting was conducted in July 2018, to set the standards for the new social studies assessments in grades 3 through 8. Standard-setting for new science assessments for all grades, originally scheduled for the summer of 2020, was postponed after the cancellation of spring testing due to the coronavirus (COVID-19).
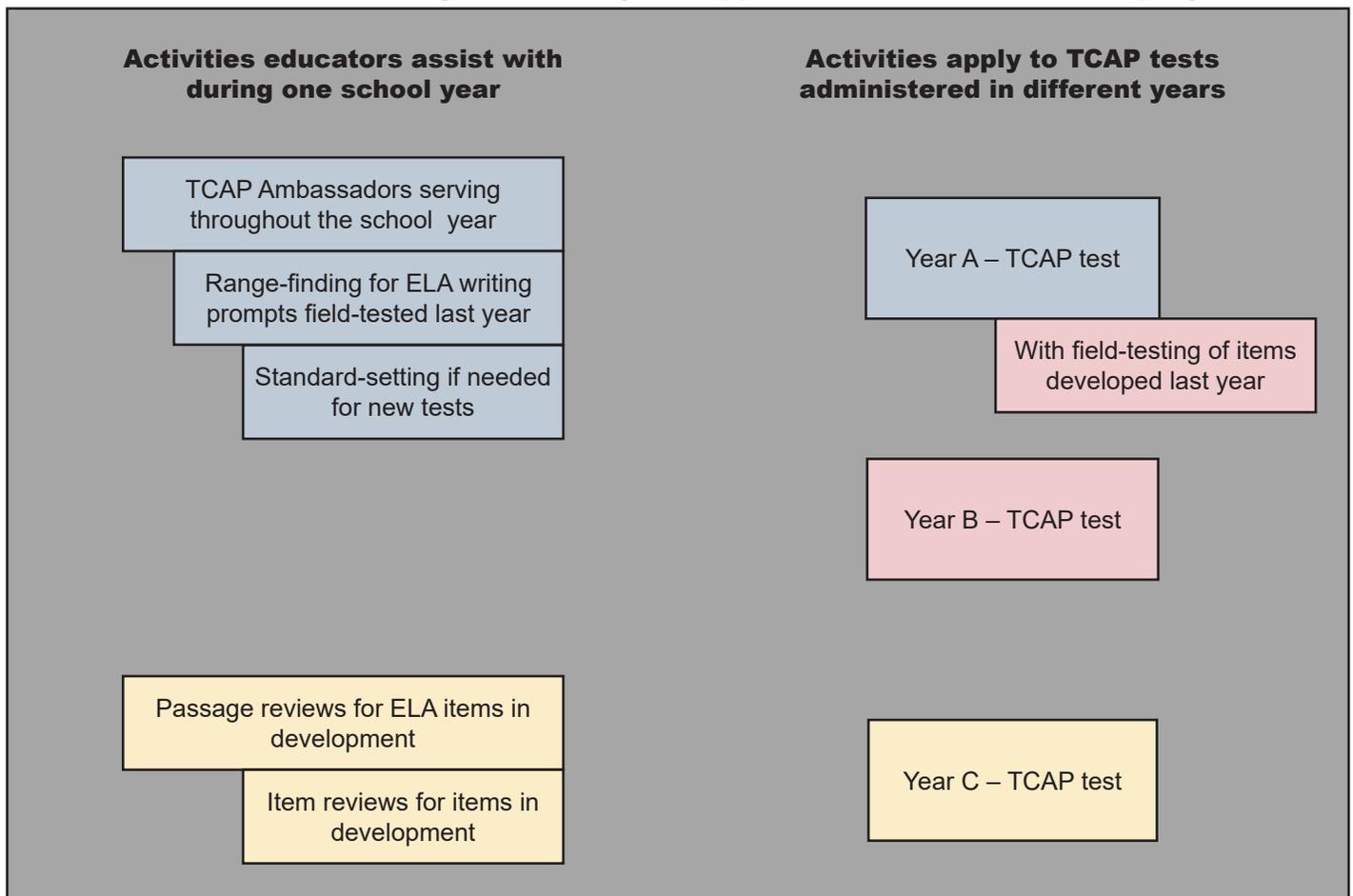
After psychometric analysis of test results is completed and performance levels have been finalized, score reports can be distributed to school districts, teachers, students, and their families. The test development vendor and TDOE determine which test items are available for public release and remove them from the test item bank. Once items are publicly released, they cannot be used again on operational test forms. (See more about public release at Question 3.)

A full cycle of test item development, content and bias review, field-testing, psychometric analysis, and placement on operational tests for scoring takes about two years. During any given school year, work on multiple phases for different years' assessments occurs simultaneously. (See Exhibit 2.)

---

[1] For example, the State Board of Education adopted new science standards in October 2016, which were implemented in classrooms during school year 2018-19. The TN Ready science assessment items were all new and being field-tested in 2018-19. The science items were slated to be included as full operational items in the 2019-20 TN Ready assessments. The State Board votes to approve final cut scores on new assessments.

Exhibit 2: TCAP activities during one school year support TCAP tests across multiple years

Activities educators assist with during one school year

- TCAP Ambassadors serving throughout the school year
- Range-finding for ELA writing prompts field-tested last year
- Standard-setting if needed for new tests
- Passage reviews for ELA items in development
- Item reviews for items in development

Activities apply to TCAP tests administered in different years

- Year A – TCAP test
- With field-testing of items developed last year
- Year B – TCAP test
- Year C – TCAP test

Source: OREA visualization of information provided by Tennessee Department of Education.

TCAP Ambassadors

The department established a TCAP Ambassador program (originally referred to as TN Ready Ambassadors) heading into the 2018-19 school year after problems with administration of the test in spring 2018. The purpose of the program was to increase transparency and understanding of the state's testing program and to incorporate more feedback from local educators across multiple stages of the testing process. TCAP Ambassadors are Tennessee educators selected by TDOE through an application process who help plan and present training on the state's testing program to other teachers. Ambassadors also recruit other teachers to serve on item review committees and participate in other aspects of the testing process. Ambassadors may review and revise test items, test forms, blueprints and specifications, test administration materials, and response data collected for field-test items; review and help select reading passages; participate in range-finding and checking that rubrics are being followed in scoring for written responses.

In 2018-19, the first year the TCAP Ambassador program was implemented, 37 educators were selected by TDOE, comprising 31 teachers (content experts) and six district test coordinators from 23 districts across the state. For 2019-20, 27 educators representing 21 districts served as ambassadors. The educators are paid for their part-time ambassador duties, in addition to their full-time education jobs, during the year: teachers receive up to $15,000, while test coordinators receive up to $10,000, depending on the hours they work.

Question 2: What is the cost of developing test items?

Item development costs are a subset of test development costs, which in turn are a subset of total test program costs. (See Exhibit 3.) Like most states, Tennessee depends on contracted vendors for the bulk of its state testing program. State education officials typically select and oversee vendors, and exercise varying levels of review and approval of vendor decisions throughout the test development and administration processes. In 2018-19, Tennessee spent approximately $37.6 million on its TCAP testing program, which included contract payments to ETS and Questar Assessment (Tennessee's test administration vendor that year), as well as administrative expenditures of the department.[J]

Contract expenditures for test development were about one-fourth (24.5 percent) of total testing expenses in 2018-19; the contract expenditures for test administration, scoring, and reporting were almost three-fourths (72.3 percent) of testing expenditures. State administrative costs accounted for the remaining 3.2 percent of test program expenditures that year, comprising approximately 15 full-time staff who managed the two testing contracts, reviewed all testing materials, and recruited and selected local educators to participate on a variety of assessment committees.[K]

State assessment budgets vary by state, but consulting firm Assessment Solutions Group estimated that in 2018-19, states spent an average of $25 per student for math, reading, and writing tests, and about $46 per student if other subjects (such as science) and alternate high school tests, such as ACT and SAT, are included.[3] Tennessee's total spending on assessment contracts in 2018-19 – covering math, reading, and writing, plus science and social studies exams for grade levels beyond federal requirements – of about $47 per student seems to be within range of similar testing programs in other states.[4]

States can use federal funds, available through Title I, Part B, of the Every Student Succeeds Act (ESSA) to help cover the costs of statewide standardized tests. In 2018-19, federal funds were allocated to cover about 22 percent of the ETS test development contract costs and about 35 percent of the Questar test administration contract costs. Considering only the state's funding share of assessment contracts, Tennessee's TCAP contract spending in 2018-19 was about $32 per student.
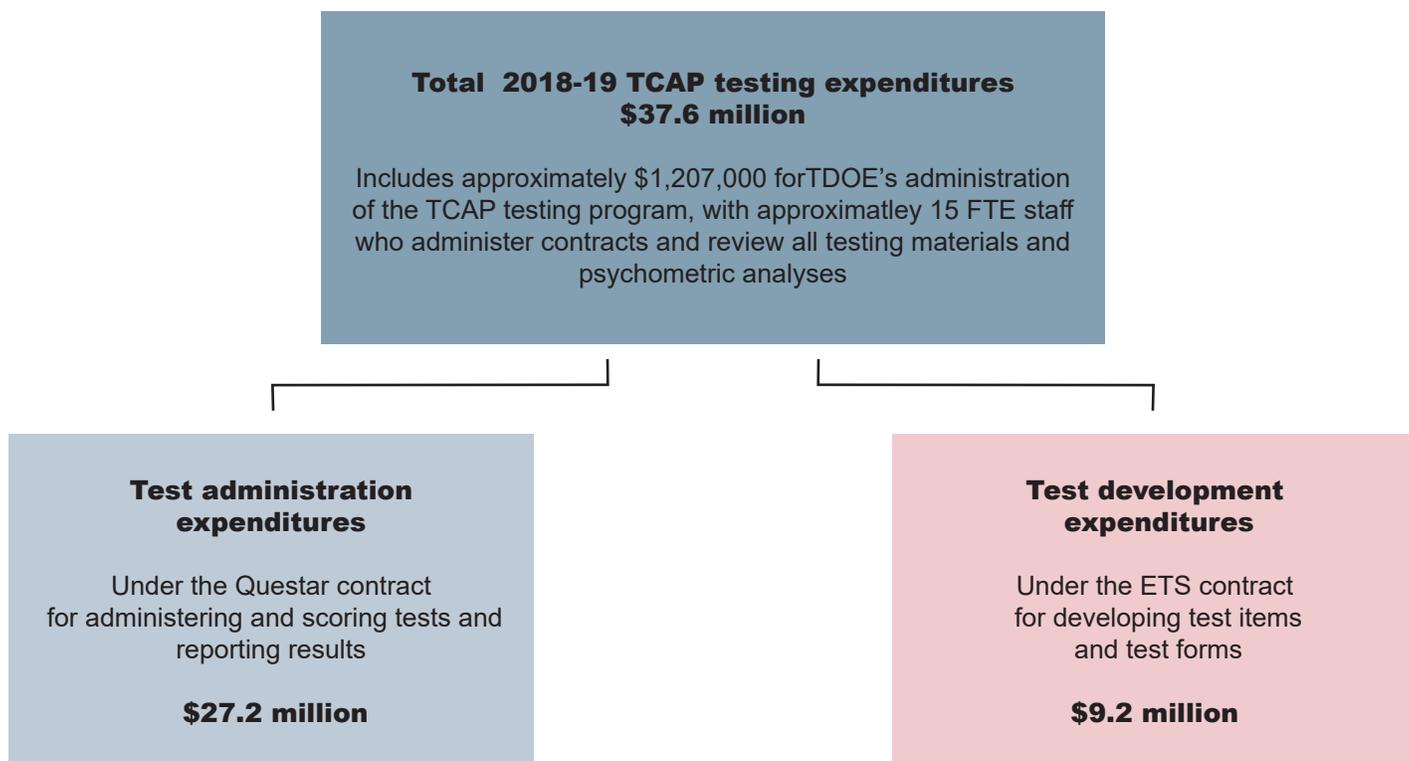
Determining the cost of item development depends to some degree on how narrowly or broadly "item development" is defined. Creation of potential new test items and their vetting by local educators in passage review and item review meetings are costs to include in the narrowest definition of item development. These costs tend to vary according to the number of test items developed. Although the state's test development contracts are not necessarily structured with specific line item costs for each development activity, TDOE has estimated various unit costs for the legislature's joint Fiscal Review Committee on bills related to TN Ready test items.

[J] Questar Assessment, Inc. is a Minnesota-based company that became an independently operated subsidiary of ETS in 2017.
[K] TDOE indicated there are also administrative costs associated with maintaining its Technical Advisory Committee, which is made up of experts on state standardized testing who provide objective analysis and advice on the state's testing program.

Exhibit 3: TCAP testing expenditures, fiscal year 2018-19

**Total 2018-19 TCAP testing expenditures
$37.6 million**

Includes approximately $1,207,000 forTDOE's administration of the TCAP testing program, with approximatley 15 FTE staff who administer contracts and review all testing materials and psychometric analyses

Test administration expenditures

Under the Questar contract for administering and scoring tests and reporting results

$27.2 million

Test development expenditures

Under the ETS contract for developing test items and test forms

$9.2 million

Note: Expenditures reflect state and federally funded expenses. Contract expenditures reflect the fiscal year period when expenses were recorded. Because testing program services extend across multiple years, contract expenditure totals for a given year generally include some expenses for testing services in prior years. Total TCAP expenditures include those related to optional 2nd grade assessments and TCAP alternative assessments for students with the most significant disabilities.
Source: Tennessee Department of Education assessment staffing and assessment contract payment data.

Exhibit 4: TCAP sample item development unit costs, 2019-20

Item development activity	ETS contract unit cost: Year 5 (2019-20)	Unit description (from ETS contract)
Development of potential new test items	$223	Per new and significantly modified selected response item
Passage selection and review	$6,979	Per passage/item review (virtual)
Content and bias item review meetings	$37,635	Per passage/item review meetings (small, 2-3 days)

Source: Educational Testing Service state contract, Sept. 14, 2015 – Sept. 13, 2020, as amended.

Other costs, closely related to item development, tend to vary at certain levels, or steps, when the number of new items being developed reaches certain thresholds. These step variable costs include the production of multiple versions of paper test form booklets and scoring answer keys to reflect the multiple sets of field-test items and may include the administrative costs for managing the item development process. A rough estimate of total costs, including variable and step cost items, for item development for 2019-20 was $3.96 million.[L] (See Exhibit 5.) Factors that determine the number of test items needed in development are discussed in the next section.

[L] Other test development activities included in the ETS contract not addressed here include developing test specifications; constructing and proofing test forms once items are selected; developing and constructing alternative tests, as well as large print and Braille test forms; collaborating with the administration test vendor on psychometric activities as needed; and general management of operations.

Exhibit 5: Cost estimates of selected activities for TCAP item development, based on 2019-20 contract data*

Item development activity	ETS contract unit cost: Year 5 (2019-20)	Baseline activity units 2019 (based on a public release and replacement of 30% of test items)	Total annual cost (unit cost × activity units)
Development of potential new test items	$223	3,711 items	$ 827,553
Passage selection and review	$6,979	119 passages	$ 830,501
Content and bias item review meetings	$37,635	39 meetings	$1,467,765
Production of multiple test form versions for field test items	$10,026	61 core test booklets (all versions needed)	$ 611,586
Item development staffing	$222,826	1 workplan	$ 222,826
			Total $3,960,231

* Note: For illustrative purposes only. Exhibit does not reflect actual expenditures. Specific steps in test item development typically occur over a two-year period, and contract payment provisions are not necessarily structured by the same activities and unit costs as shown.
Sources: Educational Testing Service state contract, Sept. 14, 2015 – Sept. 13, 2020, as amended; Tennessee Department of Education data.

Factors affecting costs of test item development

Unit costs for specific activities to develop new test items are generally set by a contract with a test development vendor, following a competitive bid process. The other part of the total cost equation is the number of units required, that is, the number of new potential test items, and the other test development units associated with test items, like the number of reading passages for ELA tests, content and bias reviews by local educators, and test form versions needed to incorporate all field-test items. State policies that impact the number of test items required – such as Tennessee's law setting the minimum number of fresh test items – will affect total test development costs.

Total number of tested grades and subjects

More tests mean higher costs to populate those tests with test items. Tennessee administers tests in more grades and subjects than most other states, which makes Tennessee's testing program more expensive. While ESSA requires math and English language arts (ELA) testing in each grade, 3 through 8, and science testing twice during those years, Tennessee administers math, ELA, and science tests in each of those grades. Tennessee also administers social studies tests in each grade, 6 through 8. (In 2018 and prior years, Tennessee also administered social studies tests in grades 3 through 5; those tests are currently paused.[M]) Tennessee also develops grade 2 math and ELA tests, which are optional for districts to administer. In 2019-20, 106 local districts (about 75 percent) had planned to administer grade 2 assessments.

At the high school level, ESSA requires at least one test each in math, ELA, and science across the span of grades 9 through 12. Even though Tennessee discontinued its English III and Chemistry end-of-course tests after 2017-18, it still exceeds federal testing requirements, administering end-of-course tests twice in ELA (English I and II), three times in math (either with Algebra I and II and Geometry or with Integrated Math I, II, and III), once in science (Biology) and once in social studies (U.S. History/Geography)).

[M] Social studies tests for grades 3-5 were planned to be paused in 2019-20 based on feedback from local school districts and the State Board of Education on reducing testing time.

Academic standards and test specifications

If the test specifications approved by the state and vendor require more items to fully cover the standards to be assessed, the result will be a larger number of items and, consequently, higher costs. If a state significantly revises academic standards in a subject area, new test items have to be developed and alignment studies may be required to ensure new test items are aligned with the revamped standards. Tennessee, for example, adopted new science standards in 2016, requiring all new science assessment items to be field-tested in 2018-19.

The format of the test items used to assess students' performance on standards also impacts costs. Constructed response items (i.e., test items that require the test taker to write a short answer or essay) are typically more expensive than selected response items (i.e., test items that require the test taker to choose the correct answer, such as a multiple choice test question), so the inclusion of more constructed response items will usually increase costs. For example, Tennessee's contract with ETS cites costs for new selected response items as $219 and $223 each in years 4 and 5 of the contract, while constructed response items were $235 and $239 each for the same years. (Constructed response items are generally considered better at assessing students' high-level skills, such as critical thinking and problem-solving.)

Percentage of items available for reuse

Reuse of some items from year to year helps hold costs down. Once the state has paid for the item development process – meaning a test item has been drafted, reviewed, revised, field-tested, analyzed – being able to use it multiple years lowers the annualized cost for its development.

In 2018, the General Assembly passed Public Chapter 895, changing the percentage of test items that had to be "retired" and not repeated on a test for at least two years from 70 percent to 30 percent. This change of allowing an additional 40 percent of test questions to be repeated more often was estimated by the department to save the state $6.4 million annually in recurring item development costs, beginning in fiscal year 2019-20.[5]

Items that cannot be reused for a period of time may be temporarily retired and stored in the state's test item bank. These items may be reused as "fresh" test questions after two years have passed.

Some test items may have a limited shelf life due to changes in state academic standards. Since tests need to be aligned to state standards, a major shift in standards may require significant item updates. Tennessee's standards in each subject area are typically reviewed on six-year cycles, at which time minor or major revisions to the standards may result.

State law on reuse of test items

Tennessee Code Annotated 49-1-610 requires that at least 30 percent of the items on each test each year must be "fresh, nonredundant items" that did not appear on that test in the previous two years. "Fresh" items are not the same as new items. Once used, an item can be temporarily "retired," and held in the item bank for two years. When it is reused after two years, it is considered fresh.

Before the 2018 change, the law required at least 70 percent of test items to be fresh, with previously used items for grades 3 through 8 held in the item bank for at least four years, and items for high school tests held for at least three years, before reusing. This requirement was included in the 2015 contract with ETS.

The change reducing the minimum percentage of fresh items from 70 to 30 percent was adopted as a method to increase the inventory of test items in the item bank, which would streamline the testing process and also reduce costs.

Source: Tennessee General Assembly, Public Acts 2004, Chapter 928 and Public Acts 2018, Chapter 895.

Number of items released publicly

Test items that are publicly released cannot be used in an operational test again, which means they must be replaced with new items. As more test items are publicly released, new items must be developed to replenish those items, which will eventually result in increased costs. The number of new items developed every year depends on several related factors: the budget for new item development, the state's policy on public release of test items, and how many items are stockpiled in the state's item bank. The new test development request for proposal (RFP) includes a proposed requirement for the vendor to provide an annual item bank report; there is no similar provision currently, although TDOE officials communicate as needed with the vendor on the item bank status. (See more about building the item bank at Question 3.)

TDOE has released about 30 percent of test items from TCAP tests for the past few years. There are no Tennessee laws that prescribe a specific percentage or number of test items that are required to be released publicly. (See more about public release at Question 3.) In 2019, at least two bills were proposed seeking an increase in the number of TCAP items publicly released.[6] The General Assembly's Fiscal Review Committee reported additional annual state expenditures of about $8.4 million (based on TDOE calculations) to move from its existing practice of releasing about 30 percent of test items to releasing 100 percent of test items.[7] Exhibit 6 shows the impact on total cost of increasing the number of new test items developed.

Exhibit 6: Comparing costs of selected item development activities at 30 percent and 100 percent item replacement*

Item development activity	ETS contract unit cost: Year 5 (2019-20)	Baseline test items needed 2019 (based on a public release and replacement of 30% of test items)	Total annual cost (unit cost x activity units)	Increased test items needed (based on a public release and replacement of 100% of test items)	Total annual cost (unit cost x activity units)
Development of potential new test items	$223	3,711 items	$827,553	11,455 items	$2,554,465
Passage selection and review	$6,979	119 passages	$830,501	238 passages	$1,661,002
Content and bias item review meetings	$37,635	39 meetings	$1,467,765	68 meetings	$2,559,180
Production of multiple test form versions for field-test items+	$10,026 - - - - - - - - $14,688+	61 core test booklets (14 versions)	$611,586	61 core test booklets (30 versions)+	$895,968
Item development staffing	$222,826	1 workplan	$222,826	3 workplans	$668,478
			Total $3,960,231	**Total**	**$8,339,093**

Notes: * Based on 2019-20 contract unit costs. For illustrative purposes only; exhibit does not reflect actual expenditures. Specific steps in test item development typically occur over a two-year period, and contract payment provisions were not necessarily structured by the same activities and unit costs as shown. These calculations are presented only to illustrate how a change in the number of test items can impact costs and are not intended to reflect actual expenditures or contract pricing.
+ The $14,688 figure is not from year 5 of the ETS contract. Because the contract set a unit cost ($10,026 in Year 5) for all core test form booklets without accounting for a potential increase in the number of test versions, a different method was used to estimate costs for the large increase in test versions that would be needed at a 100 percent item replacement level. Instead the unit cost was inflated for producing double the amount of test versions estimated as needed in an increase from 30 percent to 100 percent item replacement. The baseline and inflated unit costs were applied to the same 61 core test form booklets.
Sources: Educational Testing Service state contract, Sept. 14, 2015 – Sept. 13, 2020, and OREA calculations using Tennessee Department of Education data.

Another factor that may affect public release is a state's control over its test items. Some states lease test items from vendors, and do not have permission to release them after an assessment. Similarly, some copyrighted material, such as may be used for ELA test reading passages, can have restrictions that prevent public release of the passage. As Tennessee has developed more items and built its item bank, copyright restrictions are no longer a significant obstacle for the state's public release of test items.

Other factors in test item development costs

Other choices in the item development process may affect costs. For example, item and passage reviews by local educators have typically been done through in-person meetings, that involve not only a stipend or substitute reimbursement, but also costs for travel to the meeting, meals, and lodging. Virtual reviews can be less costly.

Computer-based testing, rather than paper format, is a choice that primarily affects the test administration side of costs (avoiding the expenses of printing and shipping forms to schools, and shipping answer booklets back for scoring), but it could also reduce some expenditures related to test development, such as field-testing items. Because Tennessee embeds its field-test items in operational tests, multiple versions of a core test, for example grade 5 math, are developed to include multiple sets of field-test items; not all students taking the grade 5 math test will receive the same field-test items. Preparing different test versions in paper format takes more time and is thus more costly than preparing different versions in a digital format.

Variable and fixed cost characteristics

Once decisions are made about the number of new test items to be developed, the costs of developing those items become like a fixed cost; they remain the same regardless of the number of students taking the test, or whether the test is administered. As described in Question 1, the process for developing new items, through review and field-testing, can take 18 months or more. Growing school enrollments may require more test booklets and answer sheets and more scorers for constructed response items, for example, but item development costs will be unaffected. Similarly, test development costs are incurred long before the test is scheduled to be given to students; thus, a significant decrease in test development costs does not result when statewide testing is canceled, as happened in the spring of 2020 because of COVID-19. Because of the fixed nature of test development costs once the process is underway, larger states typically have lower per-student testing costs because there are more students over which to spread the development costs.

Question 3: What percent of TN Ready test items are publicly released and why aren't all items publicly released?

In the last few years, TDOE has released an estimated 30 percent of operational test items overall each year. In 2018-19, TDOE released 38 percent of TN Ready operational test items for grade 3 through 8 achievement tests, and an estimated 25 percent of operational test items for high school end-of-course tests. Released items are posted on TDOE's website:

- items from 2018-19, by grade and subject, are at https://www.livebinders.com/b/2426642#anchor
- items from 2016-17 and 2017-18 are at https://www.tn.gov/education/assessment/tnready.html under "Test Items"

The two main reasons states do not release all test items are cost and maintaining the stability of the test's content and rigor from year-to year, known as equating. Test item familiarity and worries about possible "teaching to the test," as well as test security, are other concerns related to public release of test items.

Recent public release

The percentage of items released in September 2019 from the 2018-19 TCAP varied by test subject and grade, as seen in Exhibit 7, depending on how many field-tested items were stockpiled in the state's item bank. Typically, ELA will have the most released items because all writing prompt questions (constructed response items for which students must write their answers) are released annually. End-of course integrated math tests do not have any released items because so few students take those courses, making it hard to field-test items with enough students to build up the item data bank. (All science tests in 2018-19 were composed of field-test items, so there were no operational items to release.[N])

Building the item bank

Decisions about the number of items to release for any given assessment depend primarily on the number of items available for future tests, either already in the item bank or approved after field-testing to be placed in the item bank. Other factors that may impact the number of items to release include cost savings from reusing items and public policy on testing transparency, as discussed in Question 2.

Which specific items to release are determined by TDOE and both test vendors (administration and test development) based on a review of a test item's psychometric data, consideration of the item's need for linking purposes, and whether the items identified for possible release reflect the various academic standards being tested. (See more about linking items later in this section.)

Tennessee struggled to build its item bank after several changes in assessment vendors occurred in close succession. Roughly a decade ago, Tennessee signed on to the multi-state Partnership for Assessment of Readiness for College and Careers (PARCC) and, because the state planned to use PARCC assessments, it was unnecessary to build up a test item bank. Once Tennessee withdrew from PARCC in 2014, however, the state had to find a new test vendor and quickly begin building its item stockpile. The state's contract with Measurement, Inc., hired to develop and administer the state's new math and ELA assessments, was canceled after testing problems in 2016. The state then contracted with Questar in 2016 for item and test development for math and ELA assessments. (ETS had already been contracted to develop items and tests for science and social studies assessments.) In 2019, responsibilities for math and ELA item and test development were transferred from Questar to ETS.

[N] Tennessee adopted new science standards in October 2016. As a result, new assessments were developed to align with those standards. All new test items were field-tested in the 2018-19 TCAP tests, the same school year that the new standards were first taught in classrooms.

Exhibit 7: TN Ready 2018-19 test items released

Test subject and grade	Total operational items*	Released items	Percent of items released	End-of-course test	Total operational items**	Released items	Percent of items released (estimated)
ELA							
3	30	12	40%	English I	37-72	35	64%
4	32	19	59%	English II	35-71	33	62%
5	5	23	64%				
6	36	19	53%				
7	36	20	56%				
8	35	23	66%				
Math							
3	50	15	30%	Algebra I	50-101	24	32%
4	50	15	30%	Algebra II	52-104	21	27%
5	52	15	29%	Geometry	50-100	24	32%
6	51	14	27%	Integrated Math I	50-100	0	0%
7	51	15	29%	Integrated Math II	50-100	0	0%
8	50	15	30%	Integrated Math III	49-98	0	0%
Social Studies							
6	40	10	25%	US History	51-102	22	29%
7	40	13	33%				
8	40	9	23%				
Achievement total	**629**	**237**	**38%**	**EOC total (estimated)**	**636**	**159**	**25%**

Notes: * Total operational items include linking items, which are not available for public release.
** Total operational items include linking items, which are not available for public release. EOC tests have two administrations – one in the fall and one in the spring. Some operational items are the same on both tests and some are unique to one of the two tests. The range of operational items represent the lowest possible number (all items are duplicated) and the highest possible number (none of the items are duplicated) of operational items. The percent of items released are calculated on the midpoint of each range.
Source: OREA calculations based on data provided by Tennessee Department of Education.

TDOE assessment staff indicated that the department's plan, as of the summer of 2019, was to start releasing more test items as its stockpile of approved and tested items increased. Assessment staff confirmed, as of June 2020, that TDOE has a goal of full test form release – meaning 100 percent of operational items – but the timing for achieving this goal is dependent upon a robust bank of the right types of test items to cover all academic test specifications, as well as a sufficient budget to create enough replacement items. TDOE's Technical Advisory Committee (experts on state standardized testing who provide objective analysis and advice on the state's testing program) is cautious about moving toward this goal too quickly, which could deplete the item bank and compromise the quality of the tests.

The cancellation of TCAP testing in the spring of 2020 due to COVID-19 has disrupted planned timelines on a number of fronts. Field-test items included on the planned 2020 tests are in limbo until a future test date. Without the review and analysis of response data on these items, they cannot be approved and added to the item bank for future tests. The state is taking steps to prepare for eventually implementing a full test form release.

Tennessee's request for proposal (RFP) for a test development vendor included a new provision that the vendor prepare an annual item bank status report to help TDOE track the progress of stockpiling items for future tests. Also, in addition to a provision that "a portion of operational items" shall be released to the public each year, the RFP included a provision for "full form release for all assessments."[8]

Increasing transparency

As standardized testing has become more widely used for "high-stakes" decisions, and testing preparation and practice has grown, focus on the content of the tests – the test items – has increased. In addition to concerns about the number of tests, and the amount of time devoted to test preparation, there are concerns that the test questions are not aligned to curriculum and instruction. The controversy surrounding states' adoption of Common Core standards and the planned testing through national consortiums (PARCC and Smarter Balanced) may have increased skepticism about standardized testing in general. In Tennessee, testing problems resulting from technical glitches and other issues have eroded confidence in testing and in students' results.

Increased attention from educators and parents has resulted in a movement toward greater testing transparency, both nationally and in Tennessee. The General Assembly has considered several bills in recent years related to testing transparency, including proposed legislation addressing the public release of more test items.
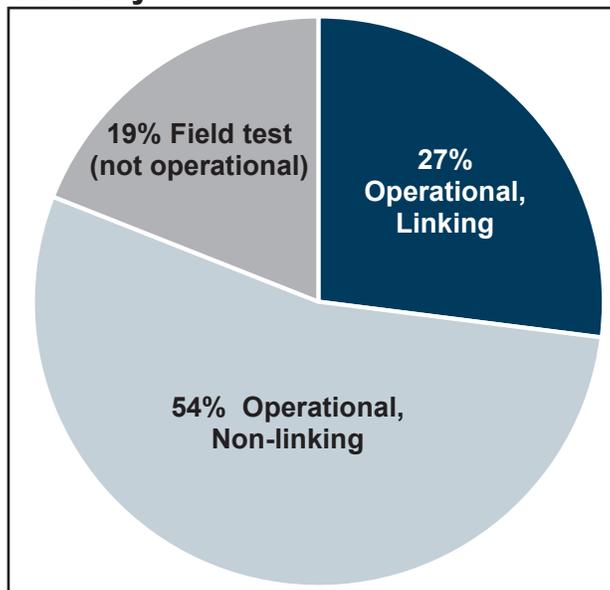
Some educators have communicated their desire for more transparency on how Tennessee's tests are aligned to the curriculum they are teaching. Parents have similarly called for more testing transparency, including the release of more test items as well as students' individual test answers.

Not releasing all test questions

In determining which test items to publicly release, only operational items – those used in calculating students' test scores – are considered. Field-test items, which are embedded in the operational tests administered to students each year, are not considered for release because their results are not counted in students' test scores, nor subsequently used for teachers' evaluations or school and district accountability. Standardized tests depend on the field-testing process to check items' psychometric properties before they are counted in students' performance results. In 2018-19, field-test questions constituted 19 percent of total test questions across assessments in all grades and subjects, though the percentage of field-test items on any given test varied. Field-test items accounted for 13 to 18 percent of total test items on math achievement tests for grades 3 through 8, 20 percent of total test items in social studies, and 23 to 27 percent in ELA. For end-of-course tests, field-test items made up 16 to 18 percent of total test items for all courses except English I and English II, which included 24 percent and 23 percent field-test items, respectively.

Exhibit 8: Types of test items on 2018-19 TN Ready tests

19% Field test (not operational)

27% Operational, Linking

54% Operational, Non-linking

Source: Tennessee Department of Education data.

Operational test items are those that are scored and included in students' reported results, and subsequently used for teachers' evaluations and school and district accountability; they totaled 81 percent of all items on the 2018-19 TCAP tests. Operational items fall into one of two categories: (1) linking items for test equating, and (2) non-linking items.

Linking or equating items

Referred to variously as *linking*, *anchor*, or *equating* items, certain questions on a standardized test may be repeated from one year to the next to ensure that test scores remain comparable over time. For comparison of test scores across years to be meaningful, the difficulty of the annual tests needs to remain constant. The linking items repeated on tests are used to *equate* or adjust the scaling of test scores to prior years. "Equating is an essential tool in educational assessment due [to] the critical role it plays in several key areas: establishing validity across forms and years; fairness; test security; and, increasingly, continuity in programs that release items or require ongoing development."[9]

Exhibit 9: Operational items | 2018-19 TCAP tests
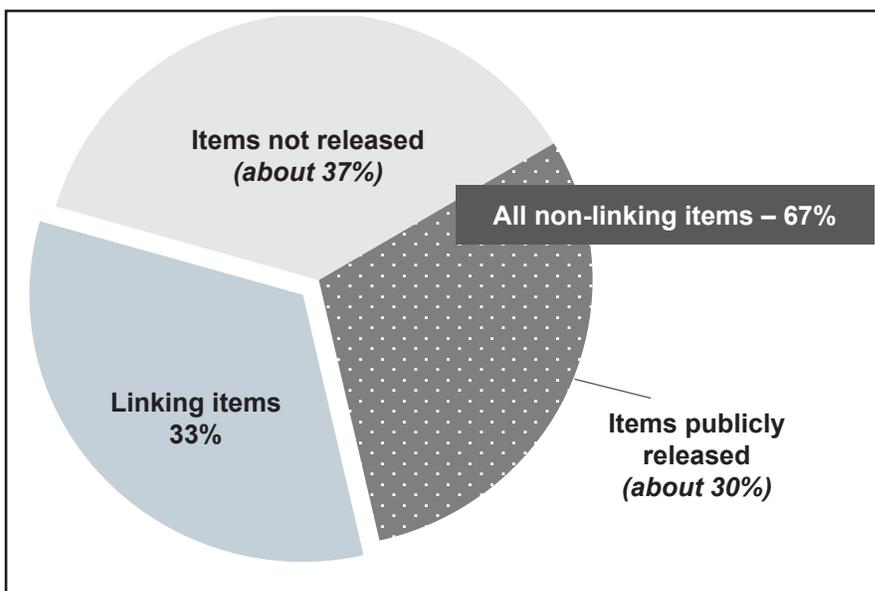
Source: Tennessee Department of Education data.

In 2018-19, linking items made up 33 percent of the operational test items on Tennessee's standardized tests. Achievement tests (grades 3 through 8) had a slightly higher percentage of linking items, 34 percent, than end-of-course (grades 9 through 12) tests, with 32 percent. The technical role of these items in test design has, in the past, prevented releasing 100 percent of operational test items. State law prohibits the public release of assessment information needed to "validate future administration of the assessments."[10] This statutory provision refers to linking questions needed to equate the state's tests from one year to another.

If all operational items on a test form were publicly released, an alternative to Tennessee's current linking item process would be required. One method under consideration by TDOE assessment staff is to move linking items from the test's operational set of questions to the embedded field-test set of questions. (Linking items in the field-test slots of an assessment are called "external anchors.") Such items could be scored for the linking data needed to equate test forms, but not counted in students' test results. They would be available to repeat in subsequent years' tests since field-test items are not publicly released. Texas, which publicly releases full test forms of operational items for its state standardized test each year, uses a different method for equating tests. Rather than linking items, the Texas Education Agency uses a psychometric model to assign difficulty scores to each item and to then scale test scores.

Considerations in releasing non-linking items

Operational test items that are not linking items are potentially available for public release. As discussed earlier, the strength of the item bank is one prime consideration before releasing a test item. Another reason for *not* releasing the non-linking, operational test items is cost. As detailed in Question 2, development of test items involves multiple steps, generally taking about two years, and is costly. The more often an item can be reused, the greater the value the state receives from its investment in developing an item. Once an item is publicly released, it cannot be reused. As one testing consultant said in a 2019 report, "It's expensive to release test items. You've got $1,000 to $10,000 an item walking out the door every time you release an item, and that's expensive to sustain."[11] The release of test items makes the testing system more transparent, however, and increased transparency is believed by some to be a key factor in building family and educator trust in state tests.

Scattered evidence shows states vary in the number of items they publicly release from their statewide student assessments. Some, like Tennessee, release a selected portion of test items. Texas releases a complete test form,

sharing all the operational items from its annual assessment. (As noted earlier, field-test items are not released and are not counted in students' scores.) The Texas Education Agency assessment staff estimated annual test and item development costs of $10 million to $20 million. Continuous development of new test items to replace those released can range from $300 to $1,000 per item, according to staff, depending on the item characteristics, such as short answer or essay, multiple choice or true/false, based on reading passages, among other considerations. North Carolina takes a different approach, developing a separate test form specifically for public release prior to the administration of the operational test. All the items have been field-tested, so it is a good sample test, but it is not administered to students for reportable scores.

Test familiarity and security

Another consideration related to publicly releasing test items is test familiarity. As more questions are released, teachers may become more familiar with the general style and format of questions for specific academic standards and be more likely to "teach to the test." While TDOE staff do not support "teaching to the test," they believe that such concerns are outweighed by the greater transparency realized through the public release of test items. Assessment staff report that the best way for teachers to see what mastery of new academic standards looks like is to see how those standards are tested.

Tennessee, like some other states, has provided teachers and students with practice versions of its standardized tests so both parties can become more familiar with the types of test items used. Some of the items on the practice tests are previously released items; others are items that parallel actual test items but were never included on operational tests. Tennessee's new test development RFP includes provisions for the development of practice tests, as well as new provisions for the development of interim tests, formative tests, and traditional year-end summative tests:

- Interim assessments are given midway through the school year to evaluate students' progress in mastering the academic standards they will be tested on at the end of the year.
- Formative assessments are shorter and more narrowly focused on a limited number of standards to help teachers adjust ongoing instruction. These are similar to the classroom tests teachers might give throughout the year.
- Summative assessments are the traditional TCAP tests administered at the end of the school year or the end of a high school course to measure students' mastery of the academic standards for a grade or subject.

The addition of formative and interim tests to Tennessee's testing program was in part a response to teachers who had expressed a desire for more formative tools. Further, in 2020, the General Assembly passed and the Governor signed Public Chapter 532, which requires the Commissioner of Education to develop "formative assessment question banks" that are aligned to the state's mandated summative assessments and made available to local school districts. Although schools or districts can purchase formative assessment resources for teachers, these resources are not likely to be explicitly aligned with the state's academic standards or with TCAP tests. Formative and interim assessments aligned with Tennessee's academic standards can provide feedback to teachers on their current students' performance, allowing them to adjust instruction before the summative tests given near the end of the school year. Teachers have typically not received results from summative tests until after the conclusion of the school year.

Concerns have also been raised about the number of test items reused from one year to another. This concern – stemming from test security rather than public release – is that classroom teachers see the test questions during test administration in one year and will "teach to the test," drilling students on correct answers to those same questions the following year, knowing that many are likely to be reused. The role of classroom teachers in the test item development process might raise similar concerns.

Classroom teachers, however, are not supposed to see test items either in test booklets or online platforms in any meaningful way. State law (*TCA* 49-1-607) prohibits teachers from any actions that compromise "the integrity of the testing process," including making or distributing unauthorized copies, altering grades or answer sheets, or

providing copies of answers or test questions. Test coordinators monitor testing administration in schools, and individuals found to have violated security guidelines may face dismissal and license revocation. TDOE training materials for teachers selected to participate in the test development process strongly emphasize the security requirements associated with their participation.

Statutory requirement for districts to make available each students' test responses

Advocates for greater testing transparency have called for the reporting of individual student answers for each test item in addition to reporting overall results.

In 2016, Public Chapter 844 was passed, requiring that starting in 2016-17, TDOE was to provide districts with access to their students' assessment items and the students' answers on such assessments. Districts were, in turn, to provide the information to students and parents upon request.

The law provides that the release of individual students' answers must comply with Tennessee's Data Accessibility, Transparency, and Accountability Act, which requires confidentiality of various student data and limits access to individual students, their parents, and authorized education and other official personnel.[12] The state Data Accessibility law itself references the federal Family Educational Rights and Privacy Act (FERPA), which similarly protects the privacy of student data.[13]

Public Chapter 844 specifically exempts release to students of field-test items, linking items (items required to "validate future administrations of the assessments"), and any test passages or related items that would violate copyright laws.[14] Although not spelled out in the law, the practice has been to provide districts with individual students' test items and answers only for test items that are being publicly released. Once a test item is released to a district, it cannot be used again in an operational test. If some test items need to be reused because there are insufficient items of that type in the item bank, premature release of those items could impact validity of future assessments.[15]

Department staff state that, although a provision to provide individual students' responses to test items was written into the state's 2016 contract with Questar, the vendor was not able to fulfill this provision. The state's current approved contract with Pearson includes a provision for an online "parent portal," to provide secure access to their children's test scores and responses to released test items, along with other test performance information. The portal was activated in the spring of 2020 and can be found at https://familyreport.tnedu.gov/login. As of June 2020, the site includes the student score reports that are provided to parents and links to resources parents can use to support their children's academic progress. TDOE plans to share released test items and individual student responses over the next several years. A similar platform geared to educators' needs for student assessment data was launched by TDOE in the fall of 2019.

TDOE currently provides districts with two reports:

- *Standards Analysis* report, which summarizes the number of test items and score points aligned to each academic standard and compares district performance to the state for each test subject and grade, and
- *School Item Response Summary* report, which identifies specific test items, the academic standards they were designed to test, and whether each test item has been publicly released, plus the average student performance on each item for the school, district, and state. (See samples of these reports in Appendix B.)

Teachers could compare their students' individual score reports with the performance rates for the publicly released items on the School Item Response Summary to pull out specific feedback for their students without compromising student privacy protections required by federal and state laws. Parents and teachers are allowed access to test results only for their children or students.

Question 4: Do Tennessee public higher education institutions have the opportunity to develop all or a portion of the TN Ready test questions?

The short answer is "technically, yes."

TDOE's request for proposal (RFP) for test development does not include any provisions that would make Tennessee's higher education institutions ineligible to bid on the contract. It is unlikely, however, that a university without a test development unit already in place could marshal the resources necessary to meet the full scope of the state's RFP. The University of Tennessee does not currently have a test development unit in operation and state officials are not aware of any other public college or university in the state operating such a unit.

The state's most recent test development RFP, posted in February 2020, requests test and item development activities not only for the traditional year-end summative assessments for all tested grades and subjects, but also for interim assessments, formative assessments, and practice assessments, across many grades and subjects. Vendors are not only responsible for drafting test items, but also for:

- test specifications and item specifications and reviews, including managing all item review committees (committees of K-12 teachers who review each item for content, bias, and accessibility),
- test form development, including multiple versions for field-test items,
- test support materials including scoring guides, manuals, and proctor scripts, and
- various psychometric activities to ensure the validity and reliability of the assessments.

Well over half – 70 percent – of the RFP evaluation points are based on general and technical qualifications and experience. Since Tennessee's higher education institutions have not been involved in testing in recent years, they would likely earn few points for experience. The other 30 percent of the RFP evaluation points are based on costs.

Alternatively, a primary test development vendor could subcontract with a university or one of its academic departments to assist with item development. According to TDOE, there is nothing to preclude higher education faculty from being involved in item development. TDOE has preapproved several subcontractors that ETS, the current primary contractor, could rely on for item development; these subcontractors are typically smaller organizations with expertise in a particular subject area, such as science.

In the past, the University of Tennessee at Knoxville was involved in developing the state's assessments, and a few other states are currently using their public universities for test development. State universities contacted by OREA that are involved in developing state test items all have long-standing units tasked with this responsibility.

Early University of Tennessee involvement

The University of Tennessee (UT) operated a test development unit during at least some of the early years of state testing. Summaries of contracts between TDOE and the UT State Testing And Evaluation Center covering the period July 1, 1984, through June 30, 1989, describe contract activities as "development and distribution of basic skills first mastery, management systems information, and program support" and "develop basic skills tests for use in an assessment program."[16] In use from 1984 through 1989, Basic Skills First was the precursor to the Tennessee Comprehensive Assessment Program (TCAP) achievement tests for grades 3 through 8. The UT testing center was also contracted to provide shipping, receiving, scanning, scoring and reporting services for the Stanford Early School Achievement Test (SESAT), which was administered to kindergarten and 1st grade students. Although documentation of the UT's testing center complete history has not been located, anecdotal accounts suggest UT either employed or contracted with a staff of 20 to 25 to operate the testing center. The UT testing center may have subcontracted some of its duties through other vendors or agencies.

University involvement in other states

At least three states rely on their public universities in developing K-12 standardized assessments: Iowa, Kansas, and North Carolina. All three of the state universities involved in state test development do so through a separate established unit of the university; two are housed in academic units and one is in a public service unit.

During telephone interviews with directors of all three units, common characteristics were noted:

- Units have operated for a long time, making coordination and collaboration with their state education departments efficient.
- Costs are lower, primarily due to lower indirect cost rates (overhead).
- Development of test items is primarily done by K-12 teachers that the units recruit, rather than by university professors.

Iowa

Iowa Testing Programs (ITP) has been housed within the University of Iowa's College of Education for more than 75 years. ITP's faculty and staff develop the Iowa Statewide Assessment of Student Progress, as well as offer graduate and undergraduate courses in educational measurement and statistics. ITP develops test items in collaboration with local district K-12 educators and then contracts with another organization to confirm the final assessment is appropriately aligned with state standards. (The contracted organization also relies on trained K-12 educators.) The state contracts with the Pearson company for delivery and implementation of the annual assessment.

The state's education department has a memorandum of understanding with the university that covers the operations of the ITP unit. State appropriations, which cover about half of state testing costs, flow through the education department. ITP bills local districts for the balance of testing costs.[o] Full-time equivalent staffing of the ITP is about 20, with additional work performed by graduate students. According to ITP's directors, its strong network of Iowa educators and long testing history help the unit operate efficiently. Additionally, some staff also serve as faculty in the university's College of Education. For example, psychometric functions at ITP are managed by faculty who also teach in the measurement and statistics graduate program.

ITP designs and manages the assessment development process. The process starts with ITP contracting with hundreds of individual K-12 educators who submit draft test questions. All of these educators sign a nondisclosure form; with the large number of participating teachers and the unpredictability of when any given item will be included on a test, ITP's concerns about test security from teacher participation are negligible. Other educators review the questions for bias, sensitivity, alignment to standards, and accuracy.

ITP recruits and screens participating educators and shepherds the test questions though the test development process, documenting decisions on and revisions of each item. ITP develops the test blueprints in collaboration with the Iowa Department of Education to ensure the test forms will reflect state standards and selects field-test items and repeating items that are included each year for test score stability.

Kansas

The University of Kansas Achievement and Assessment Institute handles all activities associated with Kansas' K-12 standardized assessments, including test development, administration, scoring, and reporting, and has performed most of these activities since 1980. The institute is organized into six centers: one, known as ATLAS (Accessible Teaching, Learning, and Assessment Systems), manages test development and psychometric analysis while another, known as Agile, handles the test delivery and administration through a computer platform. Almost all Kansas students take the state assessment online.

---

[o] This financial split is a legacy of earlier days before the current state testing requirements.

The university's School of Education has a graduate educational psychology and research program that ties into the institute's testing duties. Having faculty involved with the institute is a win-win situation for both the university and the institute, according to the director. It also helps minimize indirect costs through shared staffing arrangements and the university's donation of office space, for example.

Since 1980, the state's Department of Education has contracted with the institute through an intergovernmental agreement. The Department of Education's role has grown in recent years, and it now reviews all work products of the institute and coordinates with institute staff throughout the testing process. Institute administrators believe its low indirect costs and long relationship with the Kansas Department of Education are two advantages for the state in continuing to use the institute for the state's K-12 standardized assessments.

Funding for the Kansas assessment program consists primarily of federal funds that flow through the Department of Education, although some state funding may also be appropriated if needed. The institute employs about 20 to 25 staff in test development, which constitutes approximately 54 percent of the institute's total $5.9 million budget.[P] The remaining 46 percent of costs largely stem from personnel employed for technology and test delivery and administration.

Staff in test development lead committees of K-12 teachers in writing assessment items. Staff also edit test items, analyze psychometric data, and manage the development process. Using teachers to draft test items increases costs to provide training on how to develop items that reflect state standards and meet criteria for sensitivity and non-bias. Administrators believe the benefits of having classroom teachers develop test items outweigh the training costs: participating teachers gain a deeper understanding of how to teach the academic standards, and parents and nonparticipating teachers gain satisfaction in knowing that local teachers are deeply involved in test development. Once teachers have drafted the potential test items, professional assessment staff will review and polish the items as needed.[Q] The institute covers district substitute costs or pays stipends for participating teachers.

North Carolina
The Technical Outreach for Public Service (TOPS) program, housed in North Carolina State University's Center for Urban Affairs and Community Service, partners with North Carolina's Department of Public Instruction (DPI) to develop and deliver the state's K-12 standardized assessments as well as other assessment services. After using the California Achievement Tests for a number of years, the state in 1982 decided to begin developing its own state assessments. By 1992, the TOPS program had developed a full range of end-of-grade and end-of-course tests.

TOPS operates under three-year contracts in partnership with DPI. Both TOPS and DPI have test development and measurement units with parallel staff including content specialists, psychometricians, and managers.[R] TOPS employs about 70 to 80 staff across several units, including test item production and editing, as well as psychometric analysis and reporting, information technology programming, and warehouse staff.

TOPS contracts with North Carolina K-12 teachers to write the assessment items. TOPS recruits the participating teachers and covers their training and travel expenses. According to the TOPS director, it is important to both classroom teachers and state legislators that North Carolina's test questions come from people who teach in North Carolina's classrooms. TOPS staff provide training to teachers to write and review test items, with the guidance of staff content specialists. TOPS staff also create test items, and an independent content review of each question and the answer choices often involve college professors.

[P] Budgeted costs include not only general K-12 summative assessments, but also alternative assessments, English learner assessments, and interim and formative tests.
[Q] The institute develops other assessments in addition to the state's K-12 standardized tests. For other assessments, the institute might recruit business representatives and higher education faculty for item development.
[R] North Carolina DPI also contracts with University of North Carolina-Greensboro for psychometrical and other technical assistance.

The TOPS director cited the many years of shared institutional knowledge between the state department and lower costs for the assessment program as advantages of an in-state test developer. She cited the flexibility in being able to quickly revise or replace items when state standards change as another advantage. The director also pointed to the housing of TOPS within the university's extension service, with its mission to share its work with the public, as opposed to an academic unit at the university, as a positive characteristic.

The state DPI develops the assessment blueprint and the number of test forms needed, typically preparing three or four forms, plus a backup, and one form for public release. TOPS uses these specifications to then develop test items and forms. The department reviews and approves all the test items and forms developed through TOPS. Once the test forms are approved, TOPS works with another state vendor to print the tests. TOPS also has a warehouse crew that handles all the print forms and sends them out to districts. In addition to the statewide summative assessments, TOPS develops questions for quarterly formative tests provided for grades 3 through 8.

Some test scoring is done by TOPS and some is contracted out to another vendor. TOPS prepares reports of the test results, but DPI finalizes the reports before sending them to students and districts.

The state's contract with TOPS is about $8 million to $9 million for all testing services. Funding for the contract is about 40 percent federal funds and 60 percent state funds. The director of TOPS and a DPI official indicated that the lower overhead costs charged by TOPS – 10 percent compared to higher rates allowed by most federal contracts – translate into lower testing costs for the state.

Conclusions

Test development process

Statewide standardized testing of students in elementary and secondary schools is a large undertaking, typically managed by state education departments through contracted vendors. In recent years, Tennessee has contracted with two primary vendors, one for test administration (Questar, then Pearson) and one for test development (ETS and, as of July 2020, Pearson). With the ETS contract expiration in September 2020, Tennessee's test development and test administration are now handled by a single vendor.

The test development process is a collaborative effort between TDOE and its contracted vendor, and starts with the creation of test specifications, detailing which key academic standards in each subject area to measure, and the number and type of test items needed to do so. Developing a test is a lengthy process, taking up to two years from the time test development begins, through multiple reviews and field-testing, until test items are used on an operational test and scored.

Tennessee teachers and other district educators have multiple roles in test development and post-development activities. Over the past two years, more than 900 Tennessee educators, representing at least three-fourths of local districts, have been involved in some aspect of TCAP, either developing test items or scoring criteria. Nothing in the state's test development contracts would prevent a Tennessee university from bidding to serve as the primary vendor or from serving as test development subcontractor. At least three states – Iowa, Kansas, and North Carolina – rely on one of their public universities to develop their statewide standardized assessments, yet all three rely primarily on elementary and secondary teachers from local school districts rather than university faculty to develop and review test items.

Costs and public release

In 2018-19, Tennessee spent approximately $37.6 million on its TCAP testing program, which included contract payments to ETS and Questar, as well as administrative expenditures of the department. Test development accounted for about one-fourth of that cost total.

Test development costs can vary based on several factors, including:

- the number of tested grades and subjects,
- the frequency and scope of changes in academic standards and test specifications, and
- the availability of test items for reuse and the number of items released publicly.

In 2018-19, TDOE released 38 percent of operational test items from TCAP achievement tests used in grades 3 through 8 and approximately 25 percent of operational test items for TCAP end-of-course tests used in high schools. TDOE has a goal of increasing the percentage of items released, but this will depend on a robust test item bank of approved, field-tested, standards-aligned items, as well as a budget to create sufficient numbers of replacement items. To release 100 percent of operational test items would also require changes to Tennessee's current method of using linking items to equate test scales across multiple years.

Endnotes

[1] *Tennessee Code Annotated* 49-1-602 (a) and (b); "Every Student Succeeds Act," *Public Law* 114-95, Sec. 1111(c)(4)(B).

[2] *Tennessee Code Annotated* 49-1-302 (d)(2)(B); *Tennessee Code Annotated* 49-1-617.

[3] As reported in Lynn Olson, *The New Testing Landscape*, Future Ed, Sept. 2019, p. 14, https://www.future-ed.org/wp-content/uploads/2019/09/FutureEdTestingLandscapeReport.pdf (accessed Nov. 13, 2019). Assessment Solutions Group is a California-based for-profit assessment consultation firm and has had consulting contracts with the Tennessee Department of Education in the past.

[4] Calculation based on Tennessee Department of Education ETS and Questar contract payment totals divided by the number of students tested in fiscal year 2018-19.

[5] Fiscal Note, Senate Bill 1835, 2018, http://www.capitol.tn.gov/Bills/110/Fiscal/SB1835.pdf (accessed April 1, 2020). The fiscal note relied on information from the Tennessee Department of Education that the annual expenditures for test development were $11.2 million at the time. The proposed change from 70 percent fresh test items to 30 percent was estimated to reduce recurring annual expenditures to $4.8 million beginning in fiscal year 2019-20, a savings of $6.4 million. The lag time in savings was reported as due to existing commitments with test vendors. OREA could not trace the estimated cost savings because, after adoption of the bill in April 2018, the ETS contract was amended in June 2018 to reflect additional duties for developing math and ELA assessments for all tested grades. The contract amendment increased total contract liability by $5 million each year for fiscal years 2018-19 and 2019-20 for the additional duties. It could not be determined if the contract amendment would have increased an additional $6.4 million without the passage of legislation reducing percentage of fresh test items required. The contract amendment did, however, replace a provision under section A.8.e.(3) to reflect the new legislation requiring only 30 percent fresh and nonredundant items for operational forms of each assessment, and TDOE staff reported that specific costs for ETS item development and review decreased from $2.5 million in fiscal year 2017-18 to about $900,000, a savings of about $1.6 million.

[6] House Bill 1394, 2019, an act to amend *Tennessee Code Annotated*, Title 49, relative to state assessments; House Bill 1246, 2019, an act to amend *Tennessee Code Annotated*, Title 49, relative to state assessments

[7] Fiscal Note, House Bill 1394, 2019, http://www.capitol.tn.gov/Bills/111/Fiscal/HB1394.pdf (accessed May 27, 2020); Fiscal Note, House Bill 1246, 2019, http://www.capitol.tn.gov/Bills/111/Fiscal/SB0753.pdf (accessed April 1, 2020).

[8] Tennessee Department of Education, Request for Proposals for Assessment Item and Test Form Development, RFP #33111-00320, issued Feb. 24, 2020, p. 61 of PDF, https://www.tn.gov/content/dam/tn/generalservices/documents/cpo/rfp-updates/33111-00320/RFP_33111-00320%20Assessment%20Item%20and%20Test%20Form%20Development.pdf (accessed March 6, 2020).

[9] Joseph Ryan and Frank Brockmann, *A Practitioner's Introduction to Equating*, Revised 1st Ed. 2011, p. 1, http://www.edmeasurement.net/8225/Ryan-2011-practitioner-equating.pdf (accessed Aug. 3, 2020). Cited in Tennessee Office of the Attorney General, Opinion No. 14-068, July 2, 2014, Authority to waive requirement of *TCA* 49-1-617, https://www.tn.gov/content/dam/tn/attorneygeneral/opinions/documents/2014/op14-068.pdf (accessed July 8, 2020).

[10] *Tennessee Code Annotated* 49-6-6008.

[11] Arthur Vanderveen, president and CEO, New Meridian Corporation (a Texas-based nonprofit educational assessment organization), as quoted in Lynn Olson, *The New Testing Landscape*, Future Ed, Sept. 2019, p. 11, https://www.future-ed.org/wp-content/uploads/2019/09/FutureEdTestingLandscapeReport.pdf (accessed Nov. 13, 2019).

[12] Public Chapter 844, 2016.

[13] "Family Educational Rights and Privacy Act," U.S. Code 20 (1974), 1232(g). In addition, Tennessee's Open Records law, codified at *Tennessee Code Annotated* 10-7-504(a)(4), protects student data like test scores and answers, providing that "records relating to academic performance . . . shall not be made available to unauthorized personnel of the [educational] institution or to the public or any agency . . . without the consent of the student involved or the parent or guardian."

[14] *Tennessee Code Annotated* 49-6-6008(c).

[15] *Tennessee Code Annotated* 49-1-302(f), also provides that all statewide tests developed or provided by the Department of Education to measure individual student progress and achievement, all banks of questions, all field-testing documents used as background for the development of the tests, and all answers shall be kept confidential when and for so long as is necessary to protect the integrity of the tests.

[16] University of Tennessee state contracts, July 1, 1984 to June 30, 1986 and Dec. 1, 1985 to June 30, 1989.

Appendix A: Local educators participating in TCAP activities, 2018-19 and 2019-20

District	July 2018 Standard Setting (a)	2018-19 Ambassadors	Oct. 2018 Range Finding (a)	June 2019 Item Review	2019-20 Ambassadors	Oct. 2019 Range Finding	Nov. 2019 Passage Review	June/July 2020 Item Review (a)	Total Educator Participants
ANDERSON COUNTY				8	1	4	1		14
CLINTON				1					1
OAK RIDGE				3	1	3			7
BEDFORD COUNTY				2		1			3
BENTON COUNTY				1					1
BLEDSOE COUNTY									0
BLOUNT COUNTY		2		5	1	1	1		10
ALCOA									0
MARYVILLE				2					2
BRADLEY COUNTY		1		5			1		7
CLEVELAND		1		3	1				5
CAMPBELL COUNTY				2					2
CHESTER COUNTY				2		1			3
CLAIBORNE COUNTY				4			1		5
CLAY COUNTY									0
COCKE COUNTY				1		1			2
NEWPORT						1			1
COFFEE COUNTY				2					2
MANCHESTER				1					1
TULLAHOMA									0

District	July 2018 Standard Setting (a)	2018-19 Ambassadors	Oct. 2018 Range Finding (a)	June 2019 Item Review	2019-20 Ambassadors	Oct. 2019 Range Finding	Nov. 2019 Passage Review	June/July 2020 Item Review (a)	Total Educator Participants
CROCKETT COUNTY				1					1
ALAMO						1			1
BELLS									0
CUMBERLAND COUNTY				3		1			4
DAVIDSON COUNTY				22		2			24
DECATUR COUNTY				2					2
DEKALB COUNTY				1		1			2
DICKSON COUNTY				1					1
DYER COUNTY				9		1			10
DYERSBURG				6		1			7
FAYETTE COUNTY									0
FENTRESS COUNTY									0
FRANKLIN COUNTY				2					2
HUMBOLDT				2					2
*MILAN				2	1				3
*TRENTON				1					1
*BRADFORD				1					1
*GIBSON CO. SPEC.				1					1
GILES COUNTY				1					1
GRAINGER COUNTY				1		1	1	1	4
GREENE COUNTY				1		1			2

District	July 2018 Standard Setting (a)	2018-19 Ambassadors	Oct. 2018 Range Finding (a)	June 2019 Item Review	2019-20 Ambassadors	Oct. 2019 Range Finding	Nov. 2019 Passage Review	June/July 2020 Item Review (a)	Total Educator Participants
GREENEVILLE		1		6		1	1		9
GRUNDY COUNTY									0
HAMBLEN COUNTY				10		1			11
HAMILTON COUNTY		2		10	1	2	2		17
HANCOCK COUNTY									0
HARDEMAN COUNTY									0
HARDIN COUNTY									0
HAWKINS COUNTY				1					1
ROGERSVILLE				1					1
HAYWOOD COUNTY									0
HENDERSON COUNTY				1					1
LEXINGTON									0
HENRY COUNTY				5		1			6
*PARIS				3			1		4
HICKMAN COUNTY				3		1	1		5
HOUSTON COUNTY									0
HUMPHREYS COUNTY				1					1
JACKSON COUNTY									0
JEFFERSON COUNTY				4		1			5
JOHNSON COUNTY				1					1

District	July 2018 Standard Setting (a)	2018-19 Ambassadors	Oct. 2018 Range Finding (a)	June 2019 Item Review	2019-20 Ambassadors	Oct. 2019 Range Finding	Nov. 2019 Passage Review	June/July 2020 Item Review (a)	Total Educator Participants
KNOX COUNTY		3		14	1		2		20
LAKE COUNTY									0
LAUDERDALE COUNTY				4					4
LAWRENCE COUNTY				7			1		8
LEWIS COUNTY									0
LINCOLN COUNTY				1			1		2
FAYETTEVILLE									0
LOUDON COUNTY				3		1			4
LENOIR CITY				4		1			5
MCMINN COUNTY				2					2
ATHENS				3					3
ETOWAH									0
MCNAIRY COUNTY				2					2
MACON COUNTY				1					1
MADISON COUNTY		1		5	1	1	1		9
MARION COUNTY				2					2
*RICHARD CITY									0
MARSHALL COUNTY				2			1		3
MAURY COUNTY		1		9			1		11
MEIGS COUNTY				1			1		2
MONROE COUNTY				1					1

District	July 2018 Standard Setting (a)	2018-19 Ambassadors	Oct. 2018 Range Finding (a)	June 2019 Item Review	2019-20 Ambassadors	Oct. 2019 Range Finding	Nov. 2019 Passage Review	June/July 2020 Item Review (a)	Total Educator Participants
MONTGOMERY COUNTY				13	2	3			20
MOORE COUNTY									0
MORGAN COUNTY									0
OBION COUNTY				2		2			4
UNION CITY									0
OVERTON COUNTY				1					1
PERRY COUNTY									0
PICKETT COUNTY									0
POLK COUNTY				2		1	2	1	7
PUTNAM COUNTY				5			1		6
RHEA COUNTY				3					4
DAYTON				1					1
ROANE COUNTY				2					2
ROBERTSON COUNTY								1	1
RUTHERFORD COUNTY				17		1	2	1	25
MURFREESBORO				6				1	7
SCOTT COUNTY									0
*ONEIDA									0
SEQUATCHIE COUNTY				1					1
SEVIER COUNTY				6			1		7
SHELBY COUNTY				31		1		3	39

District	July 2018 Standard Setting (a)	2018-19 Ambassadors	Oct. 2018 Range Finding (a)	June 2019 Item Review	2019-20 Ambassadors	Oct. 2019 Range Finding	Nov. 2019 Passage Review	June/July 2020 Item Review (a)	Total Educator Participants
ARLINGTON				3	2				6
BARTLETT				11	2	3	1		17
COLLIERVILLE				4			2		6
GERMANTOWN				1					1
LAKELAND				1					1
MILLINGTON				1					1
SMITH COUNTY				4	1				5
STEWART COUNTY						1	1		2
SULLIVAN COUNTY				17		2			19
BRISTOL				4					4
KINGSPORT				12		2			15
SUMNER COUNTY									0
TIPTON COUNTY				2		2			5
TROUSDALE COUNTY				1					1
UNICOI COUNTY									0
UNION COUNTY				1					1
VAN BUREN COUNTY									0
WARREN COUNTY				4		2			6
WASHINGTON COUNTY				4		2			6
JOHNSON CITY				6	2	2	3		14
WAYNE COUNTY									

District	July 2018 Standard Setting (a)	2018-19 Ambassadors	Oct. 2018 Range Finding (a)	June 2019 Item Review	2019-20 Ambassadors	Oct. 2019 Range Finding	Nov. 2019 Passage Review	June/July 2020 Item Review (a)	Total Educator Participants
WEAKLEY COUNTY				3		1			
WHITE COUNTY				3		1			
WILLIAMSON COUNTY		4		12	2		1		
*FRANKLIN				1			1		
WILSON COUNTY		1		1					
*LEBANON		1		1					
ASD		1		5	2	3	1		
TOTAL by committee	72 (estimated)	37	70 (estimated)	410 (b)	27	63	35	224 (estimated)	

Total participants for which districts are known		572
Total participants including estimated totals		938

Notes: Standard setting committees scheduled for summer 2020 were not activated due to the cancellation of spring 2020 testing.
(a) District data not available.
(b) June 2019 Item Review – 416 educators participated, but six are not reflected here: three educators were from Tennessee School for the Blind, two did not have their school districts identified, and one was from University of Tennessee at Martin.
Source: Tennessee Department of Education data and estimates.

Appendix B: Sample TCAP reports on item results sent to schools and districts

TN Department of Education

Test Date: 2019 Spring EOC

The purpose of this report is to show how this school performed on each item, compared to the District and the State.

Item	Standard	Released (Y/N)	Reporting Category	School Average Percent Correct	District Average Percent Correct	State Average Percent Correct
TN0004868	9-10.RI.CS.4	N	Reading Vocabulary	38%	38%	38%
TN0004871	9-10.RI.CS.6	N	Reading Informational Text	26%	26%	35%
TN0004872	9-10.RI.KID.2	N	Reading Informational Text	59%	59%	66%
TN0004874	9-10.RI.CS.4	N	Reading Vocabulary	87%	87%	82%
TN0004877	9-10.W.TTP.2	N	Written Expression	65%	65%	61%
TN0011115	9-10.RI.KID.2	N	Reading Informational Text	37%	37%	47%
TN0011116	9-10.RI.KID.2	N	Reading Informational Text	50%	50%	56%
TN0011117	9-10.RI.KID.3	N	Reading Informational Text	36%	36%	43%
TN0011121	9-10.RI.KID.2	N	Reading Informational Text	41%	41%	46%
TN0011126	9-10.RI.KID.3	N	Reading Informational Text	43%	43%	45%
TN0011127	9-10.RI.IKI.8	N	Reading Informational Text	42%	42%	44%
TN0032468	9-10.L.CSE.1	Y	Conventions	42%	42%	60%
TN0032469	9-10.L.CSE.1	Y	Conventions	50%	50%	51%
TN0032471	9-10.L.CSE.2	Y	Conventions	24%	24%	34%
TN0032475	9-10.L.CSE.1	Y	Conventions	54%	54%	61%
TN0032476	9-10.L.CSE.1	Y	Conventions	34%	34%	43%
TN0035146	9-10.RI.CS.4	N	Reading Vocabulary	88%	88%	86%
TN0035175	9-10.RL.KID.2	N	Reading Literature	58%	58%	54%
TN0035176	9-10.RL.KID.2	N	Reading Literature	49%	49%	46%
TN0035178	9-10.RL.KID.3	N	Reading Literature	32%	32%	40%
TN0035179	9-10.RL.KID.3	N	Reading Literature	46%	46%	51%
TN0035182	9-10.RL.CS.5	N	Reading Literature	51%	51%	51%
TN0035184	9-10.RL.CS.6	N	Reading Literature	72%	72%	66%
TN0035185	9-10.RL.CS.6	N	Reading Literature	31%	31%	42%
TN0035186	9-10.RL.CS.6	N	Reading Literature	57%	57%	51%
TN014186	9-10.RI.CS.6	N	Reading Informational Text	39%	39%	42%
TN111724	9-10.RL.KID.2	Y	Reading Literature	60%	60%	60%
TN111785	9-10.RL.KID.3	Y	Reading Literature	68%	68%	74%
TN114137	9-10.RI.KID.2	N	Reading Informational Text	68%	68%	59%

This report may show more items than appeared on any one test form because this site may have administered multiple forms.
This report shows item statistics for operational items only.

10-03-2019 12:00.00

TN Department of Education

Test Date: 2019 Spring EOC

The purpose of this report is to show how this school performed on each item, compared to the District and the State.

Item	Standard	Released (Y/N)	Reporting Category	School Average Percent Correct	District Average Percent Correct	State Average Percent Correct
TN414117	9-10.RI.CS.4	N	Reading Vocabulary	72%	72%	79%
TN611691	9-10.RL.CS.4	Y	Reading Vocabulary	80%	80%	80%
TN611882	9-10.RL.IKI.9	Y	Reading Literature	55%	55%	54%
TN714144	9-10.RI.KID.2	N	Reading Informational Text	39%	39%	36%
TN811855	9-10.RL.IKI.9	Y	Reading Literature	45%	45%	51%
TN814166	9-10.RI.KID.3	N	Reading Informational Text	33%	33%	25%

10-03-2019 12:00.00

TN Department of Education

Total Students Tested in District: 88

Total Number of Items on Test: 50   **Test Date: 2019 Spring EOC**

This Standards Analysis Report provides information on how students performed on the standards assessed on the test for this content area. The Percent of Score Points Earned by District or State provides information on the proportion of score points earned versus total points possible. Higher percentages mean that students demonstrated greater understanding of the standard as evidenced by the higher proportion of score points they collectively earned.

Standard	Maximum Number of Tested Items for Standard	Maximum Score Points Available for Standard	Score Points Possible for District	Score Points Earned by District	Percent of Score Points Earned by DISTRICT	Percent of Score Points Earned by STATE
G.C.A.2	2	2	176	34	19%	40%
G.C.A.3	1	1	88	56	64%	60%
G.C.B.4	1	1	88	24	27%	43%
G.CO.A.2	2	2	176	140	80%	79%
G.CO.A.3	1	1	88	46	52%	41%
G.CO.A.5	2	2	176	87	49%	54%
G.CO.B.6	1	1	88	46	52%	57%
G.CO.B.7	2	2	176	75	43%	41%
G.CO.B.8	1	1	88	11	13%	24%
G.CO.C.10	1	1	88	5	6%	36%
G.CO.C.11	2	2	176	31	18%	23%
G.CO.C.9	1	1	88	32	36%	53%
G.CO.D.12	1	1	88	14	16%	20%
G.GMD.A.1	1	1	88	45	51%	47%
G.GMD.A.2	4	4	352	106	30%	34%
G.GPE.A.1	2	2	176	46	26%	39%
G.GPE.B.2	2	2	176	76	43%	45%
G.GPE.B.3	2	2	176	18	10%	25%
G.GPE.B.4	1	1	88	29	33%	29%
G.GPE.B.5	3	3	264	22	8%	16%
G.MG.A.1	2	2	176	62	35%	33%
G.SRT.A.1	2	2	176	50	28%	37%
G.SRT.A.2	3	3	264	83	31%	37%
G.SRT.A.3	2	2	176	37	21%	25%
G.SRT.B.4	1	1	88	10	11%	27%
G.SRT.B.5	2	2	176	55	31%	44%
G.SRT.C.6	1	1	88	36	41%	53%
G.SRT.C.7	2	2	176	40	23%	27%

The **Guide to Test Interpretation** at **http://familyreport.tnedu.gov/** provides more detailed information to help you interpret this report. If you have further questions, please contact the Office of Assessment Logistics at tned.assessment@tn.gov.

TN Department of Education

Total Students Tested in District: 88

Total Number of Items on Test: 50   **Test Date: 2019 Spring EOC**

This Standards Analysis Report provides information on how students performed on the standards assessed on the test for this content area. The Percent of Score Points Earned by District or State provides information on the proportion of score points earned versus total points possible. Higher percentages mean that students demonstrated greater understanding of the standard as evidenced by the higher proportion of score points they collectively earned.

Standard	Maximum Number of Tested Items for Standard	Maximum Score Points Available for Standard	Score Points Possible for District	Score Points Earned by District	Percent of Score Points Earned by DISTRICT	Percent of Score Points Earned by STATE
G.SRT.C.8	1	1	88	42	48%	51%
G.SRT.C.8a	1	1	88	45	51%	51%

The **Guide to Test Interpretation** at **http://familyreport.tnedu.gov/** provides more detailed information to help you interpret this report. If you have further questions, please contact the Office of Assessment Logistics at tned.assessment@tn.gov.