



NORTH DAKOTA DEPARTMENT OF  
**PUBLIC INSTRUCTION**

**North Dakota State  
Assessment for ELA/Literacy,  
Mathematics, and Science**

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Test Administration**

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## INTRODUCTION

North Dakota implemented a new online assessment for operational use beginning with the 2017–2018 school year. This new assessment program, named the North Dakota State Assessment (NDSA), replaced the North Dakota Smarter Balanced State Assessment in writing, reading, and mathematics. The NDSA is comprised of English language arts (ELA) assessments for grades 3–8 and 10, including writing and reading components, mathematics assessments for grades 3–8 and 10, and science assessments for grades 4, 8, and 10. All tests were administered online as computer adaptive tests in the 2020–2021 school year.

The assessment instruments should have established test administration procedures that support useful interpretations of score results, as specified in Standard 6.0 in the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014). This volume of the annual technical report provides details on testing procedures, accommodations, test administrator training and resources, and test security procedures implemented for the NDSA. Specifically, it provides the following evidence related to test administration and the validity of the assessment results:

- A description of the population for whom this test is intended
- A description of the training and documentation that test administrators (TAs) use to ensure compliance with the standardized procedures for test administration
- A description of offered test accommodations designed to remove barriers that otherwise would interfere with test takers' abilities
- A description of the test security process to mitigate loss, theft, and reproduction of any kind
- A description of Cambium Assessment, Inc.'s (CAI) Quality Monitor (QM) system and the test irregularity investigation process that detects cheating, monitors real-time item quality, and evaluates test integrity

## 1. TESTING PROCEDURES AND TESTING WINDOWS

Administering the 2020–2021 NDSA required coordination, detailed specifications, and proper training. In addition, several individuals participated in the test administration process, from those setting up testing environments to those administering the tests. Without their proper training and coordination, the standardization of the test administration could have been compromised. The North Dakota Department of Public Instruction (NDDPI) works with CAI to develop and provide the training and documentation necessary for the administration of the NDSA under standardized conditions within all testing environments. The *NDSA Test Administration Manual (TAM)*, provided in Appendix A, includes policy directions for test administration personnel to follow before, during, and after testing.

As required by the North Dakota Statutes, the superintendent of public instruction administers to public school students a test that is aligned to the state content and achievement standards in reading, mathematics, and science. The ELA and mathematics test must be administered annually to all public-school students in grades 3–8 and at least one grade level selected from grades 9–12, per Section 15.1-21-08 of the Statutes. The science test must be administered to all public-school students in at least one grade level selected from three through five, at least one grade level selected from six to nine, and in at least one grade level selected from ten through twelve.

All students had an opportunity to take a training test conducted at their school before taking the computer-based spring 2021 NDSA. The training test sessions contained sample test items and helped students become familiar with the computer-based test system’s functionality and item types. Students were encouraged to access the training test on the NDSA Portal (<https://ndsa.portal.cambiumast.com/>) and practice on their own.

The NDSA consists of ELA, mathematics, and science. ELA comprises reading and writing, given over two sessions, while mathematics is administered in one session and science is administered in one session. Students do not have a required time limit for each test session but are given approximate time allotments, instead. The spring 2021 testing window ran from March 15–May 7, 2021.

Accommodations made available for eligible students participating in the computer-based NDSA ELA reading, ELA writing, mathematics, and science assessments are described in the *Test Administrator User Guide* (Appendix B), which was accessible before and during testing from the NDSA Portal at <https://ndsa.portal.cambiumast.com/>.

### 1.1 ELIGIBLE STUDENTS

All students enrolled in the tested grade levels and subjects participated in the spring 2021 NDSA test administration with and without accommodations, per Section 15.1-21-08 of the North Dakota Statutes and federal law. Students must take the test(s) appropriate for the grade level and subject in which they are receiving instruction. Students must take the same grade-level test for ELA writing and ELA reading to receive an NDSA ELA score. This section summarizes the eligibility rules for various groups of students.

- **Public School Students.** North Dakota public school students enrolled in tested grade levels and subjects or attending a high school using the locally selected, nationally-

recognized assessment in high school (Math and ELA 11<sup>th</sup> grade) were required to participate in the NDSA, except for students whose parents opted them out of testing.

- **Home Education Program Students.** Students who received instruction at home and were registered appropriately with their district office as Home Education Program students were eligible to participate in statewide assessments. If parents or guardians identified an NDSA assessment as a selected measure of their child’s annual progress, students could participate in an NDSA test administration as directed by the District Test Coordinator (DTC).
- **English Learners.** All English learners (ELs) participated in statewide assessments. ELs enrolled in school in the United States for less than one year could be exempt, for one administration, from the NDSA ELA reading and writing assessments if a student’s EL team agreed that exemption was appropriate. However, exempt ELs were required to participate in the state’s annual English Language Proficiency assessment. Additionally, all ELs enrolled in tested grade levels and subjects were expected to participate in mathematics and science assessments, regardless of how long these students have been enrolled in a U.S. school.
- **Students with Disabilities.** North Dakota has established procedures to ensure the inclusion of all public elementary and secondary school students with disabilities in NDSA testing. Federal and state laws require that all students participate in the state testing system. In North Dakota, a student on an Individualized Education Program (IEP) participates under
  - the NDSA without accommodations;
  - the NDSA with approved accommodations; or
  - the North Dakota Alternate Assessment.

Per the Individuals with Disabilities Education Improvement Act (IDEA) and *Guidelines: Individualized Education Program Planning Process*, published by the NDDPI in 2017 (<https://www.nd.gov/dpi/sites/www/files/documents/SpeEd/Guidelines/IEP%20Guide%208-2019.pdf>), decisions regarding which assessment option a student will participate in will be made annually by the student’s IEP team and will be based on the student’s curriculum, present levels of academic achievement, functional performance, and learning characteristics. Decisions cannot be based on program setting, category of disability, percentage of time in a particular placement or classroom, or any considerations regarding a school’s Adequate Yearly Progress designation.

If a student needs an extraordinary exemption—for example, a student with a medical complexity making him or her exempt from participating in statewide, standardized assessments—a letter of this request must be submitted to the NDDPI for approval no later than four weeks before the first day of the assessment’s testing window.

## 1.2 TESTING ACCOMMODATIONS

Students participating in the computer-based NDSA were able to use the standard online testing features in the Test Delivery System (TDS). These features include, but are not limited to, the ability to select an alternative background and font color, mouse pointer size and color, and font size before testing. During the tests, students could zoom in and zoom out to increase or decrease

the size of text and images; highlight items and passages (or sections of items and passages); cross out response options using the strikethrough function; use a notepad to make notes; and mark a question for review using the flag function.

All NDSAs have appropriate accommodations available to make these options accessible to students with disabilities and ELs, including ELs with disabilities. Accommodations were provided to students with disabilities enrolled in public schools with current IEPs or Section 504 Plans and to students identified as ELs.

The North Dakota ELA, mathematics, and science assessments provide three categories of assessment features to students. These are universal tools, designated supports, and accommodations. Section 2.3 Volume 1 of this technical report lists the allowed accommodations and the number of students they were provided to during the spring 2021 test administration.

Table 1 lists the universal tools, designated supports, and accommodations offered in the spring 2021 test administration. Universal tools are CAI’s TDS access features delivered digitally (i.e., embedded) or separately (i.e., non-embedded). Designated supports for the NDSA are features available for use by any student whose need has been indicated by an educator (or a team of educators with the parent(s) or guardian(s) and student). The *Test Administrator User Guide* on the NDSA Portal (also in Appendix B) provides instructions on accessing and using these features.

*Table 1: Universal Tools, Designated Supports, and Accommodations Available in Spring 2021*

	<b>Universal Tools</b>	<b>Designated Supports</b>	<b>Accommodations</b>
Embedded	Breaks	Color Contrast	American Sign Language
	Calculator	Glossary (Spanish)	Braille
	Digital Notepad	Line Reader	Closed Captioning
	English Dictionary	Masking	Embedded Speech-to-Text
	Expandable Passages	Text-to-Speech (TTS)	Permissive Mode
	Global Notes	Translations (Toggle)	Streamlined Mode
	Glossary (English)		Text-to-Speech (Reading Passages)
	Highlighter		
	Keyboard Navigation		
	Mark for Review		
	Mathematics Tools		
	Spellcheck		
	Strikethrough		
	Writing Tools		
	Zoom		
	Mouse Pointer		
	Mute System Volume		

	<b>Universal Tools</b>	<b>Designated Supports</b>	<b>Accommodations</b>
Non-Embedded	Breaks English Dictionary Scratch Paper	Color Contrast Color Overlay Magnification Noise Buffers Read Aloud Scribe Separate Setting	100s Number Table Abacus Alternate Response Options Calculator Multiplication Table Print-on-Demand Read Aloud Stimuli (Reading) Scribe Speech-to-Text

Students who required computer-based accommodations (e.g., permissive mode) were provided the opportunity to participate in practice activities for the statewide assessments with appropriate allowable accommodations. Computer-based test settings and accommodations were required to be identified in the Test Information and Distribution Engine (TIDE) before a student started a test session. NDDPI does a one-time upload of student accommodations data and subsequent changes to student accommodations in TIDE are made by the School Test Coordinator/District Test Coordinator, as needed. Some settings and accommodations could not be changed after a student started the test.

If an EL or a student with an IEP or Section 504 Plan used any accommodations during the test administration, the TIDE and TDS systems recorded those test settings for each test a student took.

Guidelines recommended for making accommodation decisions included the following:

1. Accommodations should facilitate an accurate demonstration of what the student knows or can do.
2. Accommodations should not provide the student with an unfair advantage or negate the validity of a test; accommodations must not change the underlying skills measured by the test.
3. Accommodations must be the same or nearly the same as those needed and used by the student to complete daily classroom instruction and routine assessment activities.
4. Accommodations must be necessary for the student to demonstrate knowledge, ability, skill, or mastery.

Students with disabilities not enrolled in public schools or receiving services through public school programs who required accommodations to participate in a test administration were permitted access to accommodations if the following information was provided:

1. Evidence that the student had been found eligible as a student with a disability as defined by IDEA
2. Documentation that the requested accommodations had been regularly used for instruction



### 1.2.1 Available Accommodations

The TA and the School Test Coordinator (SC) were responsible for ensuring that accommodations had been made before the test administration dates. The NDDPI provided a separate *North Dakota Accessibility Manual* (Appendix C) as a supplement to the test administration manuals for individuals involved in administering tests to students with accommodations. This manual was accessible from the NDDPI website at <https://www.nd.gov/dpi/sites/www/files/documents/SpEd/December%202019%20Access%20Manual%20Updated.pdf>.

The following accommodations were available for eligible students with IEPs or Section 504 Plans participating in paper-pencil assessments:

- Contracted Unified English Braille (UEB)
- Uncontracted UEB

A comprehensive list of accommodations for eligible students with IEPs, Section 504 Plans, or Individualized Learning Plans (ILPs) participating in computer-based assessments is listed in Appendix B of the *Test Information and Distribution Engine User Guide* (Appendix D).

The Accommodation Guidelines provide information about the tools, supports, and accommodations available to students taking the North Dakota ELA, mathematics, and science assessments. Please refer to the *North Dakota Accessibility Manual* (Appendix C) for additional information.

The NDDPI monitors test administration in districts and schools to ensure that appropriate assessments, with or without accommodations, are administered for all students with disabilities and ELs and are consistent with North Dakota’s policies for accommodations.

## 2. ADMINISTRATOR TRAINING

The NDDPI has established and communicated to its educators and key personnel involved with NDSA test administration a clear, standardized procedure for the administration of the NDSA, including administration with accommodations. Key personnel involved with NDSA administration included District Administrators (DAs), District Test Coordinators (DTCs), School Test Coordinators (SCs), teachers (TEs), and test administrators (TAs). The roles and responsibilities of staff involved in testing are further detailed in the next section.

TAs were required to complete the online CAI TA Certification Course before administering the test. Before the spring 2021 assessment administration, EduTech, an education technology service, conducted six virtual training sessions that covered procedures for the 2020–2021 test administration over the course of three days. These training sessions were conducted via webinars and covered the Test Delivery System (TDS) and the Test Information and Distribution Engine (TIDE). All test administration personnel were invited to attend a session related to their area of the state. The dates of each training and the number of participants trained in each training session or workshop are presented in Appendix E. The trainings occurred from February 9–11, 2021. The number of participants in these sessions varied from a minimum of 25 to a maximum of 55 per session; a total of 245 participants were trained. The training recording was posted on YouTube at <https://youtu.be/Ti0maoUhbEc> as a resource for school and district staff.

Test administration manuals and guides were available on the NDSA Portal for school and district staff. The *Test Administrator User Guide* (Appendix B) was designed to familiarize TAs with the TDS and included tips and screen captures throughout. The user guide contained

- steps to take before accessing the system and logging in;
- navigation instructions for the TA Interface application;
- details about the Student Interface students use for online testing;
- instructions for using the training websites available for TAs and students; and
- information on secure browser features and keyboard shortcuts.

The *User Support* sections in the *Test Administrator User Guide* (Appendix B) and the *Test Information and Distribution Engine User Guide* (Appendix D) provide instructions to address possible technology challenges during test administration. EduTech collaborated with the CAI Help Desk to support North Dakota schools as they administered the state assessment.

### 2.1 COMPUTER-BASED ADMINISTRATION

The *Test Administrator User Guide* (Appendix B) provides instructions about creating test sessions, monitoring sessions, verifying student information, assigning test accommodations, and starting, pausing, and submitting tests. The *Quick Guide for Setting Up Your Online Testing Technology* (Appendix F) provides information about the hardware, software, and network configurations necessary to run CAI's various testing applications.

Personnel involved with statewide assessment administration play a key role in ensuring the validity of the assessment by maintaining both standardized test administration conditions and test security. Their roles and responsibilities are summarized in the following paragraphs.

### **Roles and Responsibilities in the Online Testing Systems**

DAs, DTCs, SCs, TEs, and TAs had specific roles and responsibilities in the online testing systems. Please refer to the *Reporting System User Guide* (Appendix G) for more information about their roles and permissions.

#### *District Test Coordinators and District Administrators*

DTCs and DAs were responsible for coordinating testing at the district level and ensuring that the SCs in each school were aware of policies and procedures and trained to use CAI's systems.

#### *School Test Coordinators*

Before each test administration, SCs and DTCs had to verify that student eligibility was correct in TIDE and that accommodations or test settings were correct. To participate in a computer-based test, students had to be listed as eligible for that test in TIDE. Please refer to the *TIDE User Guide* (Appendix D) for more information.

SCs were responsible for ensuring that testing at their schools was conducted in accordance with the test security and other policies and procedures established by the NDDPI. SCs were primarily responsible for identifying and training TAs. SCs worked with technology coordinators to ensure that computers and devices were prepared for testing and that technical issues were resolved. During the testing window, SCs monitored testing progress, ensured that all students participated appropriately, and resolved testing issues when necessary.

#### *Test Administrators*

TAs administered the NDSA and conducted a training test session based on instructions from each SC. TAs were required to complete the CAI TA Certification Course before administering the tests. TAs were responsible for reviewing relevant manuals and user guides to prepare the testing environment and ensure that students did not have books, notes, or electronic devices available to them while testing. They were required to administer the NDSA following the directions found in these manuals and user guides and the scripted directions in the *Test Administration Manual* (Appendix A). TAs had to report any deviation in test administration to the SC, who then reported it to the DTC. And, if necessary, the DTC would report that information to the NDDPI.

#### *Teachers*

Users with the School Test Coordinator role or higher roles created rosters for their classes or sections and users with the Teacher role accessed score reports after the test administration for students in their rosters.

## 2.2 TEST ADMINISTRATION RESOURCES

This section outlines the training sessions, webinars, and training resources available for the spring 2021 NDSA administration. Educators had to participate in the following two training sessions:

1. NDSA Preparedness Training Virtual Webinar
2. TA Certification Course

The test administration resources comprising various tutorials and user guides (manuals, quick guides, etc.) are available from the NDSA Portal at <https://ndsa.portal.cambiumast.com/resources/>. The tutorials include the presentation slides used for NDSA administrator trainings. The *NDSA Administering Tests* section provides details about the TA Interface used to administer online tests. The *TIDE Logging In and Managing Users and Students* training module demonstrates several examples of TIDE’s features. The *TIDE Managing Student Test Settings* training module explains the features used to manage student test settings. Additional information about TIDE’s features is available in the *TIDE User Guide* (Appendix D).

Similarly, the *TIDE Monitoring Test Progress and Data Cleanup* training module provides instructions on performing tasks during TIDE’s administration and after testing is complete. Test administration tasks include monitoring test progress, such as the Plan and Manage Testing Report, Test Completion Rates report, and Test Status Code Report. The data clean-up event occurs after testing, primarily to run reports on non-participation codes.

Table 2 lists the available user guides and manuals related to the NDSA administration. The table also briefly describes each resource and its intended use.

*Table 2: Guides and Manuals*

Resource	Description
<i>NDSA Test Administration Manual</i>	This manual provides policy directions for test administration personnel to follow before, during, and after testing. It also includes scripted test directions for TAs to use during test administration (Appendix A).
<i>Test Administrator User Guide</i>	This user guide supports TAs who manage testing for students participating in the NDSA training tests and operational tests (Appendix B).
<i>North Dakota Accessibility Manual</i>	The accessibility manual establishes the guidelines for the selection, administration, and evaluation of accessibility supports for the instruction and assessment of all students, including students with disabilities, English learners (ELs), ELs with disabilities, and students without an identified disability or EL status (Appendix C).
<i>Test Information and Distribution Engine User Guide</i>	This user guide describes the tasks performed in TIDE for the NDSA assessments (Appendix D).
<i>Number of Participants in NDSA Preparedness Trainings</i>	This table includes the dates of each training and the number of members trained in each training session or workshop (Appendix E).
<i>Quick Guide for Setting Up Your Online Testing Technology</i>	This manual provides information about the hardware, software, and network configurations necessary to run CAI's various testing applications (Appendix F).
<i>Reporting System User Guide</i>	This user guide describes the features of the Centralized Reporting System (CRS), a web-based system that provides score reports for each student who takes an NDSA test (Appendix G), as well as district- and school-level results.

Resource	Description
<i>Test Administrator Quick Guide</i>	This guide provides a brief overview of how to create and manage test sessions using the TA Interface and how a student will start their test (Appendix H).
<i>TIDE Quick Guide</i>	This quick guide provides a brief overview of the steps for adding user accounts and students (Appendix I).
<i>Braille Quick Guide</i>	This quick guide provides a brief overview of the steps for student test settings and test administration for Braille (Appendix J).
<i>Spanish Language and Glossary Quick Guide</i>	This quick guide provides a brief overview of the steps for updating test settings for the Spanish Glossary and Spanish-version mathematics and science tests and administering the Spanish-version tests (Appendix K).

## Department Resources and Support

In addition to the resources listed in Table 2, the NDDPI provided the following resources for districts:

- A monthly newsletter distributed via email from the NDDPI Division of Student Support and Innovation. This newsletter includes an NDSA Update section outlining information relevant to the NDSA.
- Communications via email memos on an ad hoc basis. These messages generally address specific issues that need to be communicated quickly to the field. It is distributed to superintendents, DTCs, principals, and special education directors.
- General information about the assessments via posts on the NDDPI website, such as testing windows for all state-administered assessments. The *Accessibility Manual* in the special education section of the website is often referenced to address accommodations and overall accessibility questions.

## North Dakota State Assessments Training Tests

Training tests are designed to familiarize students with the system, functionality, and item types. The items provide a grade- and subject-specific testing experience, including a variety of question types. The training tests are not intended to guide classroom instruction. Users can also use the tutorials on each item and familiarize themselves with the features and response instructions for each item type.

Computer-based training tests were available from the NDSA Portal at <https://ndpt.tds.cambiumast.com//student>. The online training tests were available 30 days prior to test administration and throughout the testing window. Computer-based training tests were designed for use with CAI’s Secure Browser or a supported web browser. The portal provides a list of supported web browsers and the versions needed to accommodate the practice tests. CAI’s TDS delivers the training tests in guest mode and secure mode. In each mode, the training tests are deployed using the same test delivery engine as the operational test.

In guest mode, anyone can log in to the training test system anonymously and take any test offered in the system. Users can experience all item types presented in the Student Interface. Anonymity also implies that users may take as many tests as they like. Additionally, the user can select from the available accommodations and supports at the beginning of the test.

The design of the secure mode, which uses the Secure Browser, ensures that students, teachers, and educators are familiar with the online testing system before operational testing begins by mimicking the secure, operational test environment. The same tools, accommodations, and embedded supports are available in secure mode as in the operational tests, as training and operational tests are delivered through the same system.

### **3. TEST SECURITY PROCEDURES**

Test security involves maintaining the confidentiality of test questions and answers and is critical in ensuring the integrity of a test and the validity of test results. If non-embedded accessibility supports are used, assessment security can become an issue when other test formats are used (e.g., Braille) or when someone other than the student (e.g., interpreter, reader, scribe) is allowed to view the test. To ensure test security and confidentiality, test administrators must (1) keep testing materials in a secure place to prevent unauthorized access, (2) keep all test content confidential and refrain from sharing information or revealing test content, and (3) return all materials as instructed.

Some of the same considerations for test security apply to embedded accessibility supports. For example, ensuring that only authorized personnel have access to the test and that test materials are kept confidential is critical in technology-based assessments. In addition, it is important to guarantee that (1) seating is arranged to prevent students from viewing other students' terminals, (2) students cannot access any unauthorized programs or the Internet while they are taking the assessment, and (3) students cannot access any saved data or computer shortcuts while taking the test. In most cases, any special required hardware devices, and appropriate applications, such as switches, should be compatible with computer-delivered assessments. Prior to testing, educators should check on device compatibility and make appropriate adjustments if necessary.

The test security procedures for the NDSA included

- procedures to ensure the security of test materials;
- procedures to investigate test irregularities; and
- guidelines to determine if test invalidation is appropriate and necessary.

Test administrators were trained on test security procedures via EduTech training. Test security policies and procedures are clearly presented in the TAM (Appendix A).

North Dakota has developed appropriate policies and procedures to prevent test irregularities and ensure test result integrity. These include maintaining the security of test materials, assuring adequate training for everyone involved in test administration, outlining appropriate incident-reporting procedures, detecting test irregularities, and planning for investigation and handling of test security violations.

If a test administrator has reason to believe that a violation in testing security has occurred, he or she should notify the School Test Coordinator (SC) immediately. The SC should then inform the District Test Coordinator (DTC).

If there is reason to believe that a lapse in test security has occurred, the DTC must

- immediately notify the NDDPI;
- securely transmit relevant evidence of irregularities via secure file transfer after the incident occurs; and
- maintain the confidentiality of all evidence and documentation related to testing security investigations.

If the NDDPI has reason to believe that a violation in testing security has occurred, it has an obligation to investigate the incident as soon as possible. Districts and schools are required to comply with the NDDPI's requests for documentation and information relevant to their initial investigation. The NDDPI may involve the school district or conduct a separate investigation.

If the NDDPI determines that an irregularity in test administration or security has occurred, the NDDPI will notify the DTC in writing, indicating the status of the case. Depending on the severity of the incident and its potential effect on the NDSA program, actions may include, but are not limited to

- invalidation of student scores;
- a requirement for the district or school to administer the breach form;
- a requirement for the district or school to complete a corrective action plan;
- the NDDPI's recommendations and/or requirements for inclusion in the district or school corrective action plan; and/or
- no further action required.

The DTC will be required to submit a corrective action plan to the NDDPI, which may include but is not limited to, the following:

- Investigative findings indicating that the testing irregularity resulted from inappropriate district test administration and/or inadequate security protocol
- Investigative findings indicating that the DTC did not provide adequate or sufficient training to personnel involved in test administration and/or security procedures

### **3.1 SECURITY OF TEST MATERIALS**

Before the test materials are finalized, items undergo multiple reviews by various committees. It is critical to maintain the security of test items during these committee meetings. Items are accessed directly from CAI's secure Item Tracking System for online committee meetings; thus, no printed copies need to be transported to meetings. Materials are printed on light green paper, with each page marked as secure in the header and/or footer. Such printed materials are distributed to participants only after they have signed the CAI and state nondisclosure forms. CAI staff review the security procedures with the committee members.

All test items, test materials, and student-level testing information were deemed secure, and appropriate handling was required. Secure handling protects the integrity, validity, and confidentiality of assessment questions, prompts, and student results. Reporting of any deviation in test administration was required to protect the validity of the assessment results.

The security of all test materials was required before, during, and after test administration. Under no circumstances were students permitted to assist in preparing secure materials before testing or organizing and returning materials after testing. After any test administration, secure materials (e.g., test tickets, scratch paper) were required to be returned immediately to the SC and placed in locked storage. Secure materials were never to be left unsecured, permitted to remain in classrooms, or removed from the school's campus overnight; they had to be securely destroyed after test administration. In addition, any monitoring software that might have allowed test content



on the student workstations to be viewed or recorded on another computer or device during testing had to be disabled.

All special document test materials (braille) were treated as secure documents, and processes were in place to protect them from loss, theft, and reproduction of any kind. Braille test booklets had to be returned via FedEx to CAI after test administration, and a notification of the return was provided to NDDPI.

It is considered a testing security violation for an individual to fail to follow security procedures set forth by the NDDPI, and no individual was permitted to

- read or view the passages or test items before, during, or after testing;
- reveal the passages or test items;
- copy the passages or test items;
- explain the passages or test items to students;
- change or otherwise interfere with student responses to test items;
- copy or read student responses; or
- cause achievement of schools to be inaccurately measured or reported.

A secure browser was required to access the computer-based NDSA tests. CAI's Secure Browser provided a protected environment for student testing by disabling hot keys, copy, and screen capture capabilities and preventing access to the desktop (Internet, email, and other files or programs installed on school machines). Users could not access other applications from within the Secure Browser, even if they knew the keystroke sequences. Students were not able to print from the Secure Browser. During testing, the desktop was locked down. CAI's Secure Browser was designed to ensure test security by prohibiting external applications or navigation away from the test. Please refer to the *Test Administrator User Guide* (Appendix B) for more information.

### 3.2 INVESTIGATING TEST IRREGULARITIES

Throughout the testing window, TAs must report breaches of protocol and testing irregularities to the appropriate SC, CAI Help Desk; and the NDDPI, if appropriate. Online test invalidation requests are submitted, as appropriate, through the *Appeals/Invalidations* module under *Administering Tests* in the TIDE system.

CAI's Quality Monitor (QM) system gathers data to detect cheating, monitors real-time item function, and evaluates test integrity. Every completed test runs through the QM system, and any anomalies (such as unscored or missing items, unexpected test lengths, or other unlikely issues) are flagged. Immediate notification then goes to CAI psychometricians and the project team through quality assurance reports. The forensic analysis report from the QM system flags unlikely patterns of behavior in test administrations aggregated at the test administration, test administrator, and school levels.

CAI psychometricians can monitor testing anomalies throughout the testing window. A variety of evidence is collected for the evaluation. These include unusual changes in test scores across administrations, much shorter or longer item-response times as compared to the state average, and

item-response patterns using the person-fit index. The flagging criteria used for these analyses are configurable and can be changed by the user. The analyses used to detect the testing anomalies can be run anytime within the testing window.

If any unexpected results are identified, the lead psychometrician alerts the project manager immediately to resolve any issues.

### **3.3 GUIDELINES FOR TEST INVALIDATION/APPEALS**

During the testing window, TAs are required to report any test incidents (e.g., disruptive students, loss of Internet connectivity, student improprieties) to the SC immediately. A test incident could include testing that was interrupted for an extended period due to a local technical malfunction or severe weather. SCs notify DTCs of any test irregularities that are reported. DTCs are responsible for submitting requests for test invalidations/appeals to the NDDPI via CAI's Test Information and Distribution Engine (TIDE) system. The NDDPI makes the final decision on whether to approve the requested test invalidation/appeal. DTCs can track the status and final decisions of requested test invalidations/appeals in TIDE.

### **3.4 CAI'S SYSTEM SECURITY**

CAI has built-in security controls in all of its data stores and transmissions. Unique user identification is a requirement for all systems and interfaces. All of CAI's systems encrypt data at rest and in transit. NDSA data reside on servers at Rackspace, CAI's hosting provider. Rackspace maintains 24-hour surveillance of its facilities' interiors and exteriors. CAI and Rackspace staff receive formal training in security procedures to ensure that they know the procedures and implement them properly.

Hardware firewalls and intrusion detection systems protect our networks from system breaches. CAI's systems maintain security and access logs that are regularly audited for login failures, which may indicate intrusion attempts. All of CAI's secure websites and software systems enforce role-based security models that protect individual privacy and confidentiality in a manner consistent with the Family Educational Rights and Privacy Act.

CAI's systems implement sophisticated, configurable privacy rules that limit data access to only appropriately authorized personnel. CAI maintains logs of key activities and indicators, including data backup, server response time, user accounts, system events and security, and load test results.

## REFERENCES

American Educational Research Association, American Psychological Association, National Council on Measurement in Education, & Joint Committee on Standards for Educational and Psychological Testing (U.S.). (2014). *Standards for educational and psychological testing*.