An Evaluation of Districts' Readiness for Online Testing

A Report to the 81st Texas Legislature from the

Texas Education Agency

TEXAS EDUCATION AGENCY

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Robert Scott
Commissioner

December 1, 2008

The Honorable Rick Perry, Governor of Texas
The Honorable David Dewhurst, Lieutenant Governor of Texas
The Honorable Tom Craddick, Speaker of the House
Members of the Texas Legislature

Over the past several years, there has been a strong push to increase the level of rigor in Texas high schools and enhance college readiness. This initiative included the passing of House Bill 1 (HB 1) during the third special session of the 79th Texas Legislature. Beginning with the 2011–2012 freshman class, HB 1 requires students who graduate under the recommended or distinguished program to have four courses in each of the four core content areas: English language arts, mathematics, science, and social studies.

In tandem with these changes in Texas education, Senate Bill 1031 (SB 1031) was passed by the 80th legislature. SB 1031 requires the phase-out of the Texas Assessment of Knowledge and Skills (TAKS) program for grades 9, 10 and exit level and replaces it with end-of-course (EOC) assessments in core content areas. Because of increasing statewide interest in computer-based testing, SB 1031 also required the Texas Education Agency to conduct a statewide evaluation to determine the feasibility of converting the state's student assessment program to a computer-administered format.

Specifically, the study includes

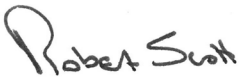
(1) a review of prevailing state practices regarding computer-based testing,
(2) a review of the literature related to the comparability of assessment results from computer- and paper-based tests,
(3) a comprehensive survey of all school districts regarding their readiness to move toward computer-based testing, and
(4) case studies of six representative Texas school districts.

This report evaluates the data gathered from the study and provides a picture of the current state of readiness of Texas districts and campuses, information regarding the transition of the state's student assessment program from paper- to computer-based, and estimated costs for achieving full readiness for computer-based assessment. The report is divided into six sections:

Section 1: Executive Summary
Section 2: Project Methodology
Section 3: Statewide Survey Findings
Section 4: Case Study Findings
Section 5: Interpretation/Discussion
Section 6: Options and Costs

The report will be posted at the agency's web site under Legislative Reports on the Communications Division Web page.

Respectfully submitted,



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Submitted to the Governor,
Lieutenant Governor, Speaker of the House of Representatives, and the members of the 81st Texas Legislature

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SECTION 1. EXECUTIVE SUMMARY

As required by the 2007 Legislature, the Texas Education Agency (TEA) conducted a study to determine the feasibility of converting the state's student assessment program to a computer-administered format. The following report provides a picture of the current state of readiness of all Texas districts and campuses, a set of recommendations regarding the transition of the state's student assessment program from paper-based to online, and estimated costs for achieving full readiness for online assessment.

The state has been using operational online versions of its assessments since fall 2005 and has successfully delivered more than one million online tests to date. Currently, online tests are available as an option for districts for the Texas Assessment of Knowledge and Skills (TAKS) exit level examinations. In addition, for the current school year, online-only versions of tests are now operational for both the Texas English Language Proficiency Assessment System (TELPAS) Reading test and for the End-of-Course (EOC) tests in Algebra I, geometry, biology, chemistry, and U.S. history.

The research partnership formed to conduct this study consisted of TEA; Pearson, the prime contractor in support of the Texas student assessment program; the Texas Association of School Administrators (TASA); researchers from the State of Texas Education Research Center (ERC) at Texas A&M University; and the Education Commission of the States (ECS).

The study consisted of

- a review of prevailing state practices regarding computer-based testing,
- a review of the literature related to the comparability of assessment results from computer- and paper-based tests,
- a comprehensive survey of all school districts regarding their readiness to move toward online testing, and
- case studies of six representative Texas school districts.

Findings

Overall District Readiness. Statewide, researchers estimate that approximately 9% of campuses currently have enough computers to administer all but accommodated tests online if no other change is made to the statewide assessment program. This report details four options for converting the state's assessment program from paper-based to online testing, along with each option's cost estimates.

Prevailing state online testing practices. The review of other states' testing programs showed that 22 states offer some form of online statewide student assessment. Only three of the 22 have made online tests mandatory for most students. State assessment policies regarding time limits on testing and testing window lengths, which are two factors affecting the number of computers needed to support computer-based testing, were also reviewed. None of the states offering high-stakes online testing reported using a timed test, and no state reported having an online testing window of less than one week.

Literature review. A review of high-stakes statewide student assessment programs was conducted to gain an understanding of how states handle the administration of the same or similar tests on paper and online. Research focused on whether the scores obtained from the paper- and computer-based versions of the same test can be treated the same. Identical test questions can demonstrate mode effects (that is, they can perform differently in the computer mode than they do in the paper mode). The literature review found that in many statewide testing programs, if a mode effect is found, the table converting raw scores (the number of questions answered correctly) to reported scale scores for the test is adjusted to account for the observed effect. Mode effects can potentially result in different raw scores being associated with each performance level for paper- and computer-based versions of the same test. Because of this, the continuing use of comparability studies in the Texas student assessment program is recommended in order to address any ongoing mode effects and to ensure the tests' continued fairness and legal defensibility.

Survey for online readiness. The district survey for online readiness had an overall response rate of about 98%, with 1,214 districts and charter schools and 8,220 campuses participating. "Readiness" as defined in the report includes not only technology infrastructure but also necessary staffing and training resources. The survey was conducted entirely online and addressed five issues: network and technical infrastructure needs, financial concerns, personnel and staffing needs, training needs, and districts' perceptions of online testing.

Survey results showed that 99% of participating campuses have Internet access, with approximately 85% having high-speed connections. However, about three-fourths of responding campuses reported having experienced Internet or network congestion in the past two years.

In addition, the survey asked about computer resources available for online testing. Campuses statewide reported having approximately 933,000 computers available for use, with 40% in classrooms and 60% located in computer labs or libraries. Approximately 6% of campuses reported having enough computers for all enrolled students to test at the same time during one test administration, while another approximately 5% of the responding campuses with students in grades 2–12 reported having no computers at all available for online testing.

Approximately 55% of the campuses reported having access to adaptive technology for students needing accommodations. Campuses varied greatly in the quality and quantity of their available computer resources.

The survey also sought to identify the levels of staffing and training necessary for administering statewide assessments online. Districts specified that additional staff would be required in order to handle full-scale online testing, especially with respect to technology staff. But districts also expected needing to assign significantly fewer teaching staff to administer online tests if an extended testing window is allowed. Campuses varied substantially in the estimates of the number of training hours that would be needed for campus coordinators, teachers, non-teaching personnel, and students to administer online assessments. However, campuses generally expected that students would need less training than district personnel if the state transitions its assessment program from paper- to computer-based testing.

The district-level surveys inquired into the costs associated with online testing. Districts reported spending more than $735 million statewide during the 2007–2008 school year on technology, of which $26 million (3.5%) was used for online testing activities. The largest reported technology-related expenditures were for purchasing new hardware and for replacing existing hardware. Fewer than one-third of districts reported typically replacing their computers within four years or sooner, and more than half do not do so until after five years or more.

District perceptions of online testing varied widely. Statewide, districts and campuses were evenly split on whether the advantages of online statewide testing outweigh the disadvantages. In general, however, larger districts and campuses were more likely to report that the advantages of online testing outweigh the disadvantages. Some expected advantages reported by districts and campuses were a perceived reduction in the amount of printed materials, a decrease in the time required to report test results, and a reduction in the need to handle secure paper materials. Districts and campuses reported that they expect some challenges as well, such as an increased technology burden, insufficient numbers of computers, and a lack of backups/alternatives in the event of system failure. More than half of the campuses expressed concerns about being able to meet the needs of students requiring accommodations while testing online.

Case studies. A major component of the online readiness study was in-depth case studies of six school districts in Texas. These case studies served as a complement to the statistical, quantitative data gathered through the online campus and district surveys. TEA identified districts that represent a cross-section of the state. Of the six districts participating, two were large urban districts, two were mid-size urban districts, one was a mid-size suburban district, and one was a small rural district. These districts selected key

personnel and campuses to participate in the observation/interview process. The structured interviews used a specific set of questions developed for either district or campus visits. Data were also obtained through observational techniques using multiple trained observers.

All case-study districts reported that online testing would dramatically ease the test administration process and reduce much of the burden on district and school testing coordinators. All case-study districts had the expectation that online testing would provide more timely feedback and could possibly allow for increased student motivation. Five districts thought online testing helps maintain student interest in the test. Five districts also believed that online testing reduces the potential for test administration error on the part of both students and administrators. Four districts believed that online testing would eventually provide long-term cost savings for the districts and the state.

However, all districts studied stated that they currently have insufficient numbers of computers and equipment for online testing in their schools. Lack of space also emerged as a general concern. A large number of regular classes would need to be moved to a school library or other common area to accommodate space for online testing. All districts described scheduling challenges related to online testing, noting the logistical difficulties of moving students and/or computers to different classrooms. Nearly all districts discussed the need to balance instruction and testing, noting concerns about lost instructional time because of room shuffling and schedule disruption, especially for classes that normally make full-time use of their computers.

Each district provided examples of connectivity and infrastructure problems that they have experienced or expect to experience with increased online testing. These problems include issues related to electrical power, Internet connections, bandwidth, and servers. Five districts said they would need to rewire and otherwise significantly upgrade older schools for electricity and Internet connectivity to accommodate enough computers for large-scale online testing.

All case-study districts discussed critical personnel issues related to online testing in their districts, primarily focusing on the amount of technical support each school would need in order to test successfully online. Districts reported that technology training for both teachers and students will be required in order to increase their comfort level with online testing technology and to minimize testing anxiety.

A majority of districts discussed "digital gaps," such as the lack of equitable access across the student population to computers and the technology skills necessary for online testing. The digital gap was perceived as being primarily attributable to the student body's socio-economic status; districts reported a

belief that students from lower socio-economic families with more limited access to computers outside of school might be at a disadvantage with respect to online testing when compared with other students.

Finally, cost was a critical issue for nearly every district studied. Districts were concerned about the cost of computers, networking equipment, training, and improved infrastructure.

Although all six districts studied recognized the key benefits of online testing, they expressed concern with the idea of large-scale online testing. Most districts, however, had at least some respondents who were enthusiastic about online testing, provided they have the appropriate tools and resources.

Key Conclusions Within This Report

1. Both the case studies and the statewide survey indicated that the need for an adequate inventory of computers and equipment must be addressed before the state's paper assessments can fully transition to online testing. However, addressing this factor depends heavily on assessment program parameters, such as the length of the testing window and decisions regarding time limits for testing. For example, if the testing window remains at one day and there are no time limits, only 6% of campuses statewide are currently ready for online testing of their entire student enrollment. However, if the window is expanded to one week per test, approximately 65% of the state's schools currently have enough computers to support full online testing.

2. Both the statewide survey and the case studies strongly suggest that problems with Internet connectivity are an obstacle to successfully implementing online testing. Internet connections at some testing sites do not have enough bandwidth, and campuses often have insufficient network infrastructure. One way to address the issue of insufficient bandwidth is to expand testing windows from a single day to multiple days per test. The issue of insufficient network infrastructure could be solved by improving the hardware, or its configuration, that routes network data through a campus or by putting additional computers in place at either the district or campus level to serve as test-caching stations. A test-caching station allows identical content to be accessed by many users at the same time.

3. Districts stated that they struggle with logistical issues when arranging for online test sessions. Districts reported that approximately 80% of students participating in a prior online test administration tested in a non-classroom setting, such as a computer lab or campus library. Of the

933,000 computers reported as currently available statewide for online testing, approximately 40% are located in classrooms, often in insufficient numbers per room to support testing an entire class at once. To move to full online testing, massive movement of computers and/or students would be required, which has the potential to significantly disrupt instruction.

4. Districts consistently indicated that finding enough space for online testing would be a problem for many campuses. Online testing requires desks that accommodate computers, electrical wiring sufficient to power each computer, enough space or a physical barrier between computers to avoid displaying test answers to nearby students, and network cabling for each computer except where wireless networking is deployed.
5. More than 79% of campuses reported that one benefit of full online testing would be a reduced need to handle secure paper materials.
6. Survey respondents and case-study participants stressed that any move to full online testing will require additional district technical support and computer resources staff. It was noted that this might be offset slightly by the decreased number of personnel that would be required for warehouse staffing and paper-handing responsibilities.
7. The survey findings and the case-study results reflect a belief that more training will be needed in order to support full online testing.
8. The study suggests that roughly half of campuses believe that the overall benefits of online testing outweigh the challenges, with larger districts and larger campuses more likely to see advantages than disadvantages.

Options

Computer capacity, infrastructure, personnel, and ongoing operational readiness will all need to be addressed in any option the state considers as it plans for a transition from paper-based to online assessments. Each of these dimensions carries an additional cost burden for districts. The estimated number of computers needed for full online assessment is determined by the student-to-computer ratio. The target student-to-computer ratio is affected by the length of the testing window, the number of different tests a student must take within any given window, and whether there are time limits on the tests. The options presented in this report address each of these variables. The effect on infrastructure (wiring, air conditioning, etc.) associated with the addition of computers is also considered within each of the options presented. Given that significant retraining of assessment and technology personnel will be necessary in order to successfully administer online tests, the options presented assume

transition costs for teacher and staff training. And finally, knowing there will also be ongoing costs associated with maintaining a district's or campus's readiness for each subsequent year's online assessments, the options include ongoing cost estimates of online testing as well. A summary of each option is provided below. Detailed discussions concerning these options are included in the full report that follows the Executive Summary.

Option 1—Full Transition to Online Under the Current TAKS Structure

TAKS is currently administered to most students in a single day for each test. Under the current structure of the assessment system, full implementation (all grades and subjects) and transition of TAKS from paper to online would require the acquisition of a large number of computers and technology. Under Option 1, campuses statewide would require slightly more than 2.4 million computers, with approximately 1.5 million additional computers needing to be purchased. Including the additional costs associated with infrastructure and personnel readiness, the statewide total estimated cost for full transition to online under the current TAKS program structure would be almost $2 billion, with an additional ongoing annual operational cost estimate of $520 million.

Option 2—Introducing Time Limits

Currently, students taking TAKS tests are given no time limit beyond the requirement to complete the test within one day. This puts several practical and logistical limitations on a school's ability to schedule more than one testing session per day. Retaining the existing structure of one test per day but introducing an up-to-three-hour time limit would allow schools to schedule two test sessions in any one day, effectively allowing a student-to-computer testing ratio of 2:1. Introducing this change to the program would cut in half the total number of computers required statewide to support online testing, from 2.4 million to 1.2 million. The additional number of computers that would need to be purchased and put into place would be about 486,000. Including the additional estimated costs associated with infrastructure and personnel readiness, the total estimated cost for full transition to online under Option 2 would be $728 million, with additional ongoing operational cost estimates of $262 million. It should be noted that adding time limits might be a significant policy change for a state where high-stakes tests have not previously been timed; furthermore, no other state with high-stakes tests administered online imposes this restriction.

Option 3—Extending the Testing Window

A further change to the current structure of the TAKS assessment program would involve extending testing windows. This is the most common method used by other state assessment programs to reduce the number of computers necessary for a student population to test online. In fact, researchers were unable to find any high-stakes assessment program currently using online testing for which multiple-day windows were not in use. In Option 3 each separate TAKS test, by grade and subject, would be given a one-week scheduled window. Increasing the testing window for each test but retaining the current full-day time limit for individual students would allow the target student-to-computer ratio to increase to 4:1 for the week of maximum testing load. The additional number of computers required for full statewide readiness capacity would be slightly more than 152,000. Including the additional costs associated with infrastructure and personnel readiness, the total estimated cost for full transition to online testing under Option 3 would be $310 million, with additional ongoing operational cost estimates of $151 million.

Option 4—Partial Implementation

Option 4 presents a partial implementation model, wherein only secondary grades would move to mandatory online testing on a schedule concurrent with the transition from TAKS to end-of-course assessments required under Senate Bill 1031. Under Option 4, the recommended window length would be three weeks for all EOC tests, plus one additional week earlier in the year for the English I, English II, and English III assessments. The recommended overall testing window takes into consideration two factors related to EOC testing: EOC assessments are not grade-specific, and the total number of tests students take in a particular year is based on students' schedules. No time limits are factored in Option 4. The total number of computers required to assess students under Option 4 is approximately 330,000. Survey data show that approximately 65% of all Texas schools with students in grades 7–12 report having enough computers to meet the required readiness capacity. The incremental number of computers required for full statewide readiness capacity would be just under 109,000. Including additional costs associated with infrastructure and personnel readiness, the total estimated cost for full transition to online under Option 4 by 2012 would be $197 million, with additional annual ongoing estimated operational costs of $81 million.

Figure 1.1—Summary and Recommendations

	Option 1: Current Structure	Option 2: Timed Tests	Option 3: 1-Week Windows	Option 4: Partial (EOC)
Key Characteristics				
	• Full implementation of online testing at all grades, using current TAKS program structure	• Full implementation of online testing at all grades, using current TAKS structure but with up-to-3-hour time limits placed on tests, allowing for schools to schedule 2 test sessions per day	• Full implementation of online testing at all grades, using current TAKS structure (or current TAKS for grades 3–8 and EOC for secondary course enrollments) with 1-week scheduled testing windows per test	• Partial implementation of nonvoluntary high-stakes online testing for students taking EOC exams only • 3-week testing window
Summary of Benefits				
	• Minimal change to existing TAKS assessment program • Minimal effect on instructional displacement of students • Minimal security issues (all students test at once)	• Reduction in estimated costs and number of computers required • Minimal effect on instructional displacement of students • Minimal security issues (all students test same day)	• Extended window allows greater flexibility for campus use of computers and contingency allowed for unplanned hardware, power, or connectivity failures	• Significant reduction in estimated costs and number of computers required • Extended window allows greater flexibility for campus use of computers and contingency allowed for unplanned hardware, power, or connectivity failures • Coincides with the planned transition of the secondary-level TAKS student assessment program to EOC assessment
Summary of Challenges				
	• Most expensive option, both startup and operational costs • Minimal capacity for unplanned hardware, power, or connectivity failures	• Estimated costs and number of computers required remain high • Minimal capacity for unplanned power or connectivity failures • Policy change and potential effect on students from time limits placed on tests	• Significant potential for instructional displacement; campuses may lose up to four weeks of instructional time from computer labs and other computer-based classes	• Potential for instructional displacement impact • Most students would have limited to no experience with online testing before high school

Recommendation

Each of the four options for statewide online assessment presented in this report has its own benefits and challenges. Option 1 has the advantage of having the most minimal effect on the existing TAKS assessment program and

the least amount of instructional displacement and security issues, but it is the most expensive option by a significant margin. Option 2 has many of the same benefits as Option 1 but at a far lower cost; however, the effects of introducing time limits on high-stakes statewide tests and the resulting reactions from districts, schools, parents, and students should not be underestimated. Option 3 offers even further cost reductions. Option 3's extended testing window would provide districts with greater flexibility for leveraging available computer and network resources, but the increased potential for displacement of instructional computer resources could pose a significant challenge for many districts and campuses. In Options 1 through 3, staggered implementation timelines could help offset initial transition costs by spreading expenditures over multiple years, but extended implementation timelines would not address non-cost-related challenges, nor would they offset any of the ongoing cost effects associated with the need for districts to maintain readiness for online testing.

It is the recommendation of this report that Option 4, partial implementation of statewide online testing for EOC assessments only, be considered for the transition from paper-based to online testing. The recommended timeline for this implementation would coincide with the planned transition of the secondary-level TAKS student assessment program to EOC assessment. Option 4 offers the most practical approach. It is cost effective for districts, and it provides districts and the state with several years in which to acquire the necessary computer capacity, infrastructure, and personnel.

SECTION 2. PROJECT METHODOLOGY

In response to provisions in Senate Bill 1031 (SB1031), TEA issued a Request for Proposal (RFP) No. 701-08-048, "Contracted Services for Evaluating Districts' Readiness for Online Testing," in April 2008. Following a competitive review process, a contract to conduct a statewide evaluation of Texas school districts' readiness for online testing was subsequently awarded to Pearson, the state's student assessment contractor. The RFP called for a report to be submitted by TEA to the Legislature before the start of the 2009 legislative session.

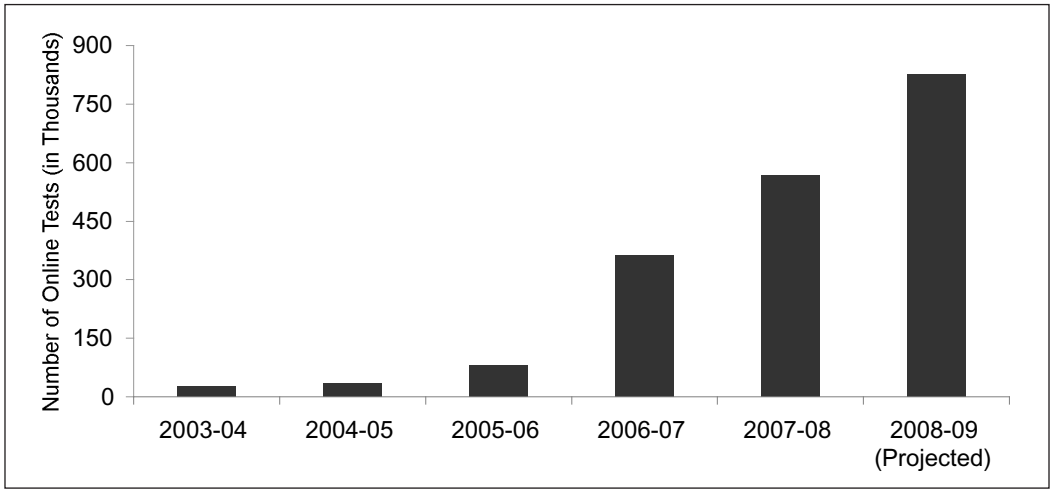
Over the past several years, TEA has delivered more than one million tests online. Following earlier pilot studies and field tests, an operational online version of the TAKS exit level retest has been available as an option for districts since the fall of 2005. To date, over 200,000 online TAKS tests have been taken in the state.

Online-only End-of-Course tests have been operational starting with the EOC Algebra I test in the spring of 2006 . To date, over 400,000 online EOC tests have been taken in the state.

The TELPAS Reading test has been an online test in Texas since March 2006. To date, over 440,000 online TELPAS tests have been taken in the state. Starting with the 2007–2008 school year, the TELPAS Reading test will be fully transitional to an online-only format (with allowances for paper-based accommodations for students who require them).

Figure 2.1 shows the statewide growth in online testing that has occurred over the past five years, as well as the projected number of online tests that will be taken during the current school year.

Figure 2.1—Growth of Online Tests Administered in Texas



The number of online tests in the 2008–2009 school year is projected to increase approximately 45 percent above participation levels of the 2007-2008 school year.

In the years ahead, increased emphasis may be placed on online testing. As such, the online readiness survey and individual district-level case studies were designed to determine the state's capacity to support an expansion of online assessment activities. Survey questions were developed to document the districts' current state of readiness for online testing. The survey results, combined with the results of case-study interviews, informed the development of options for achieving and maintaining a state of readiness for online assessment. In addition, the plan's costs and timeline were investigated in detail.

To fulfill the legislative requirement for gathering statewide online testing information, a research partnership was formed by TEA with Pearson, the Texas Association of School Administrators (TASA), researchers from the State of Texas Education Research Center (ERC) at Texas A&M University, and the Education Commission of the States (ECS). This consortium was an outgrowth of earlier statewide technology evaluation projects. These organizations have a proven track record of working with Texas school districts and with other states to evaluate technology infrastructure and navigate the multifaceted issues of public school finance. Previous studies conducted by TASA and Texas A&M (1996, 1998, 2000, and 2002) catalogued the progressive growth of school district technology infrastructure.

Readiness Evaluation

The readiness evaluation had four components.

1. A review of all statewide student assessment programs in the nation was conducted. The research identified state assessment programs that have computer-based components and noted whether those states offer computer-based versions as optional or mandatory for districts. The resulting state-by-state matrix details information regarding grades and subjects tested online, the use of constructed or extended responses online, reporting time frames, and testing windows. Detailed results can be found in Appendix 1.
2. A review of the current research literature related to the comparability of assessment results from computer- and paper-based administrations was completed. The review summarizes the types of studies that have been conducted, the types of analyses used in the studies, and the implications that can be drawn from the studies' findings. Detailed results can be found in Appendix 2.
3. A statewide online survey was conducted from June through September 2008 regarding school districts' technological readiness. Nearly 98% of Texas school districts responded to the readiness survey. While

undoubtedly due in part to the legislative mandate, this high rate of participation was also indicative of districts' keen interest in having their voices heard on this critical issue. Appendix 3 contains a list of participating and nonparticipating districts.

"Readiness" was defined broadly to include not only technology infrastructure but also expected staffing and training resources. Survey questions were designed to account for current-year staffing and technology capacity as well as for any planned growth and changes that could affect staffing and capacity in the near-term future. The full set of survey questions can be found in Appendix 4.

The research team employed multiple quality control processes to maintain data integrity. These included logic and data authentication rules to identify discrepancies between different data points within a participant's responses and human review and documentation of answers that suggested anomalies. Detailed results can be found in Appendix 5.

4. The research team conducted case studies of six Texas school districts. These studies provided in-depth supplemental information about district-specific experiences, challenges, and opportunities surrounding online testing. In addition, the case studies gleaned information about district perceptions of online testing and more-specific costing expectations for full-scale online assessment.

   The case-study districts were selected to balance a combination of factors, including socioeconomic status, annual campus budget, size of student enrollment, current technology status, diversity of student population, existing technology infrastructure, locale type (urban, suburban, or rural), past participation in online testing, student participation in online assessments, teacher experience, and the geographic area served.

   Interviews were conducted with key district and campus personnel, including superintendents, principals, technology support staff, and teachers. District contacts were asked to identify at least two campuses that would represent a compelling source of information regarding either past experiences, successes, and challenges, or future opportunities and potential challenges. Research teams conducted one- to two-day on-site interviews and observations at the six districts chosen to participate in the case studies.

   The resulting case-study report offers an in-depth description of the online testing experiences of the six Texas school districts as well as of several campuses within each of these districts. It provides concrete examples of the districts' and campuses' successes with planning and

administering online assessments; it also describes barriers to success in this area. In addition, the study examines perceptions expressed by key district and campus personnel regarding the advantages and disadvantages of online testing.

Data Analyses

The research team completed thorough analyses and comparisons of all the data received. The analyses address the number of computers available for testing, the number of students to be tested, the length of the testing window, and security considerations related to the testing window's length. They also examine the risks perceived to be associated with computer-based testing models, detailing both current and potential advantages and disadvantages. They further explore any risks that might be specific to only one or a subset of the Texas assessments and explicitly address any potential effects on special populations, such as English language learners and users of braille, large-print, and other special testing accommodations. Based on these factors, the analyses detail the state's current capacity to administer computer-based assessments, taking into account technology infrastructure and personnel capacity. Finally, the analyses provide estimates of the costs to the state to convert the student assessment program to a computer-based format under various scenarios.

Recommendations

Based on the analyses, the research team proposed a set of options for implementation related to the overall cost and feasibility of converting the state assessment program to a computer-based format. The recommendations include options for implementing online testing with reasonable execution timelines.

SECTION 3. STATEWIDE SURVEY FINDINGS

The Texas Legislature recognizes that online testing is most effective when districts and campuses have adequate resources. Because of this, SB1031 called for a statewide evaluation of districts' and campuses' readiness for online testing. One component of this evaluation was the administration of a statewide survey of all Texas districts and campuses to assess their current capabilities and future requirements in implementing a fully online statewide student assessment program. This section highlights the major findings of the survey.

Survey Administration and Content

The statewide survey of districts and campuses was administered under the oversight of TEA. The survey was conducted entirely online and consisted of two main components. The first component was designed to assess readiness for online testing at the district level. It contained 36 questions grouped within the following five categories.

- Network/Infrastructure (10 questions)
- Financial (10 questions)
- Personnel/Staffing (8 questions)
- Training (4 questions)
- Perception of Online Testing (4 questions)

The second component examined readiness for online testing at the campus level. It included 36 questions grouped within the following four categories.

- Network/Infrastructure (6 questions)
- Facilities/Hardware/Software (19 questions)
- Personnel/Staffing/Training (7 questions)
- Perception of Online Testing (4 questions)

A complete list of the district- and campus-level survey questions is provided in Appendix 4.

Survey Participation

All 1,239 districts that participate in statewide testing in Texas were asked to participate in the survey. The surveys were delivered electronically to each school district and included district- and campus-level components. Districts were asked to complete the survey within an approximate two-month window

from June 30 to September 1, 2008. An extension until September 8 was granted to districts that needed additional time to complete the survey.

At the conclusion of this window, 1,214 districts had responded to the district-level survey, representing an overall response rate of 97.8%. Of the 1,214 responding districts, 1,209 completed all questions on the district-level survey, and five districts submitted partially completed surveys. Responses were received for 8,220 campuses for the campus-level surveys. Of the campus-level responses, 8,097 campuses completed all survey questions, and 123 campuses submitted partially completed surveys. For the partially completed surveys, responses were included in the data analysis; non-responses were not included in the data.

Data Integrity Check

Throughout the survey administration and analysis process, researchers performed data integrity checks on submitted responses. Districts for which any irregularities were found were contacted for verification. In some cases, districts re-submitted their responses as a result. Ongoing technical assistance and support were provided to district personnel as they completed the survey online.

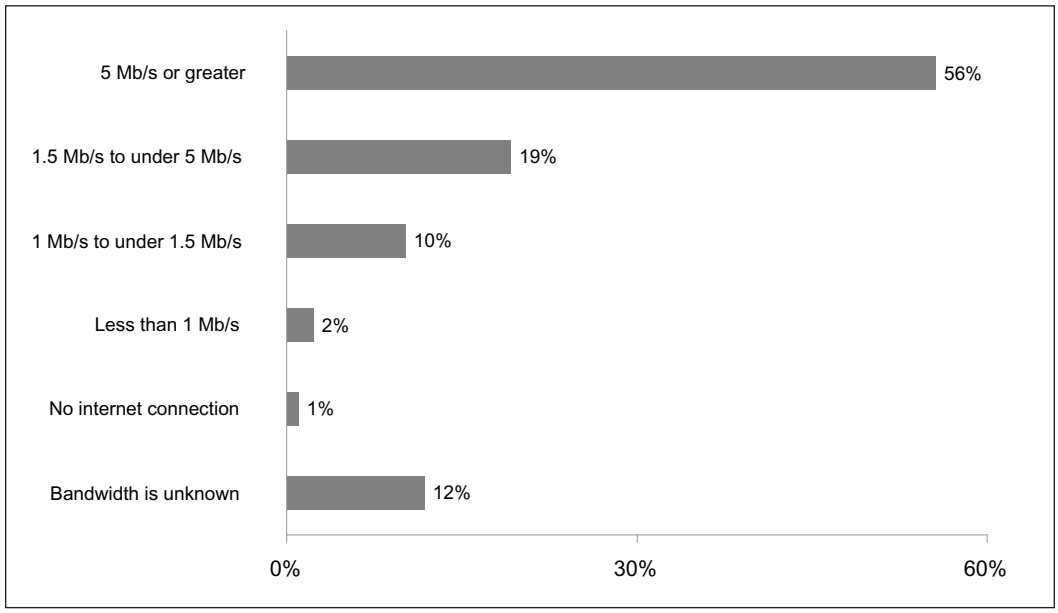
Survey Highlights

Detailed survey results are provided in Appendix 5. Summaries of the survey findings are organized below according to the main categories of questions asked on the district- and campus-level surveys.

Network and Technical Infrastructure. Districts and campuses were asked about network and technical infrastructure issues that could affect their ability to administer statewide assessments online. Notable findings include the following:

- Nearly every campus in Texas has Internet access. Survey results showed that fewer than 1% of participating campuses (65 in all) do not have Internet access. Of those 65 campuses, the majority were alternative education facilities, such as Juvenile Justice Alternative Education Programs (JJAEPs).
- Campuses with Internet access generally have high-speed Internet connections. Figure 3.1 shows that approximately 75% of responding Texas campuses reported having Internet connection speeds of 1.5 Mb/s or higher, while 56% reported speeds of 5 Mb/s or higher. As a point of reference, the Federal Communications Commission considers anything above 1.5 Mb/s to be beyond "basic broadband."

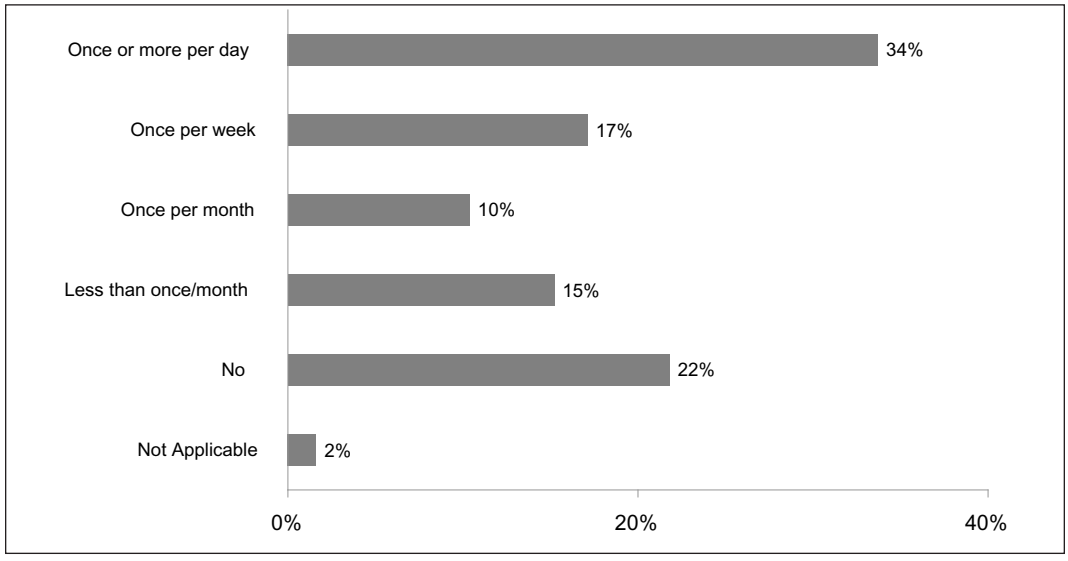
Figure 3.1—Reported Campus Internet Bandwidth*



*Campus Question C2: "What is the available bandwidth of this campus's main telecommunications or Internet connection?"

- Districts and campuses varied substantially in the amount of bandwidth congestion they reported experiencing. For example, Figure 3.2 shows that about one-third of responding campuses (34%) reported experiencing Internet congestion (defined as slow Internet performance) at least once or more per day over the past two years, while 22% had not experienced any Internet congestion over the past two years.

Figure 3.2—Reported Campus Internet Bandwidth Congestion*



*Campus Question C3: "Has this campus experienced Internet bandwidth congestion (slow Internet performance) during school hours in the past 2 years?"

In summary, survey responses indicated that practically all Texas districts and campuses have access to the Internet. A key challenge in this area will be to help districts and campuses resolve recurring bandwidth congestion issues. In addition, outlier situations in which campuses do not have high-speed Internet access would need to be addressed so that students at these campuses are able to test online.

For detailed summaries of district- and campus-level responses to questions about network and technical infrastructure, refer to Tables 5.2–5.7 and 5.39–5.43 in Appendix 5.

Computer Resources. Districts and campuses answered questions about available computer resources. The results are summarized below.

- Overall, districts reported that approximately 933,000 computers are available for online testing on campuses across the state.
- Of those computers available, approximately 40% were computers inside classrooms, and about 60% were non-classroom computers (for example, computers located in labs or libraries).
- Approximately 5% of campuses with enrollment in grades 2 through 12 reported having no computers available for online testing.
- About 6% of campuses with enrollment in grades 2 through 12 reported a total number of computers (in classrooms and outside of classrooms) greater than or equal to their campus enrollment, based on information from the October 2007 PEIMS database.
- Campuses were roughly split on whether they had access to the necessary specialized technology, such as screen readers and screen magnifiers, for special needs students to participate in online testing. Slightly more than half (57% of campuses) reported access to such technology, and 43% indicated that they did not have access.

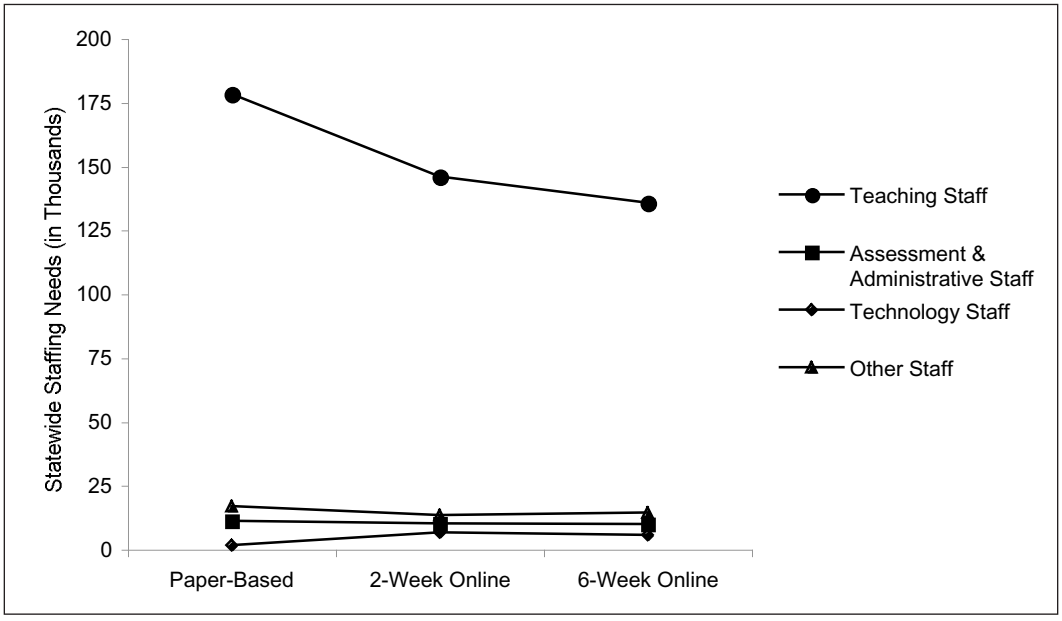
In summary, while there are reportedly a large number of computers in districts across the state, campuses varied greatly in the quality and quantity of their available computer resources. Specific challenges, such as providing access to the necessary technology for special needs students, need to be addressed in order to support statewide online testing.

For detailed summaries of responses to questions related to computer resources on the district- and campus-level surveys, refer to Tables 5.9 and 5.42–5.60 in Appendix 5.

Staffing and Training. Both the district- and campus-level surveys included questions designed to gather information about the perceived level of staffing and training that would be required in order to administer statewide assessments online. Highlights of the findings include the following:

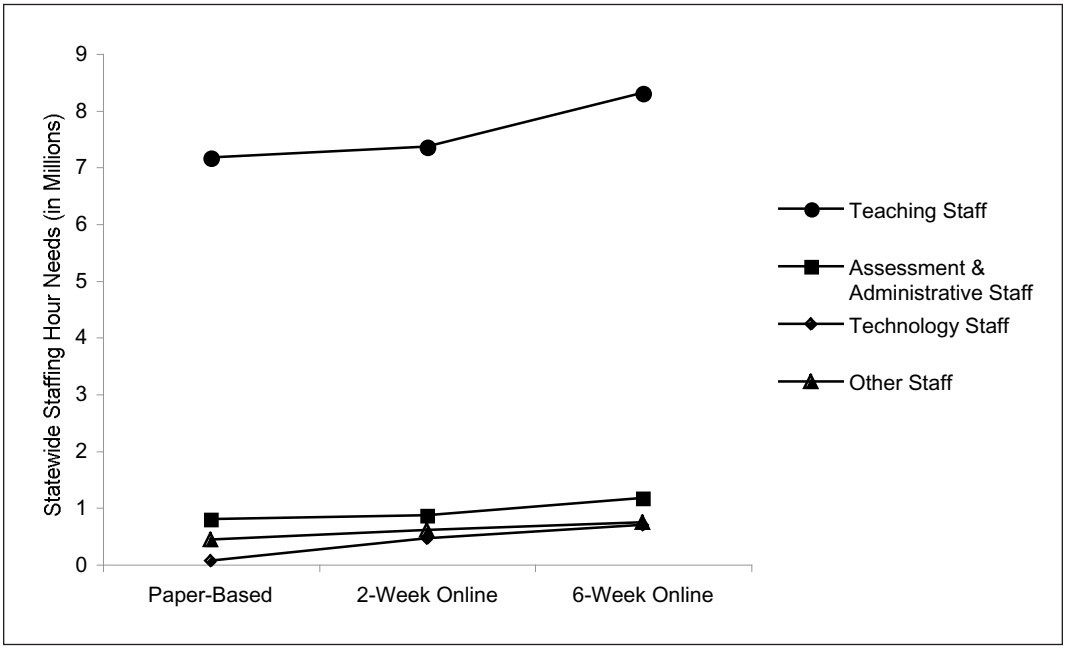
- In order to gauge the number of staff required to administer paper versus computer-based assessments, districts were asked to report the number of staff and total hours needed for the current paper-based test administrations and to estimate the same information for hypothetical online administrations (based on a sample set of administrations provided) for both two-week and six-week testing windows. As illustrated in Figure 3.3, districts statewide generally perceive a need to use more technology staff but significantly fewer teaching staff in administering online tests over an extended window, for which the need for assessment, administrative, or other staff remains effectively constant. As illustrated in Figure 3.4, districts expect that the total number of staff hours required, however, increases with longer testing windows.
- Campuses varied substantially in the number of training hours reportedly needed for campus coordinators, teachers, non-teaching personnel, and students. In general, campus respondents perceive that students need fewer training hours than campus staff need for participation in online testing.

Figure 3.3—Total Staffing Needed Statewide to Move to Online Testing*



*Campus Questions C26–28 asked schools to provide the total number of personnel and the total number of hours of work that would be needed in order to administer the 2007–2008 paper-based TAKS primary and EOC assessments (Question C26), a hypothetical online administration of the same assessments in a two-week window (Question C27), and a hypothetical online administration of the same assessments in a six-week window (Question C28).

Figure 3.4—Total Staffing Hours Needed Statewide to Move to Online Testing*



*The same campus questions referred to for Figure 3.3 were used for Figure 3.4.

In summary, districts and campuses indicated that administering online assessments over an extended window would require fewer staff members in total but an incrementally greater number of staff *hours*. Campus administrators generally believe that students will require less training and preparation for online administrations than teachers and other district personnel will require.

For detailed summaries of district- and campus-level survey responses to staffing and training issues, refer to Tables 5.20–5.31 and 5.61–5.64 in Appendix 5.

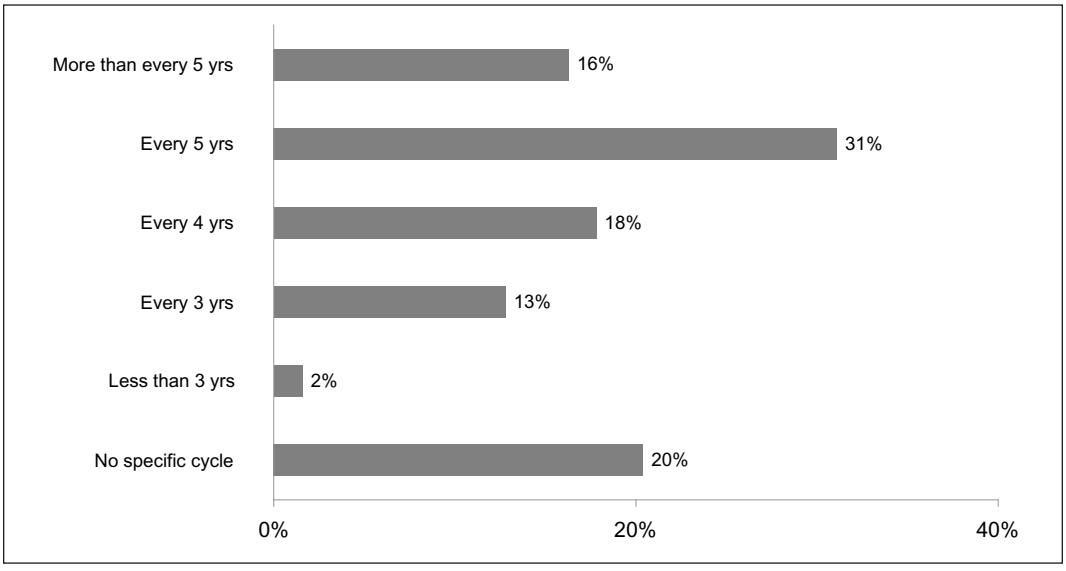
Financial Considerations. Questions related to the financial considerations surrounding online testing appeared only on the district-level survey. Highlights of the findings are provided below.

- During the 2007–2008 school year, districts reported spending more than $735 million statewide on technology, of which $26 million (or 3.5%) was allotted for online testing. The median amount spent on technology per district was approximately $90,000, and the mode was $30,000. The largest reported technology-related expenditures were for purchasing new hardware and replacing existing hardware and for expenses related to personnel.
- One hundred and fifteen districts (9% of responding districts) reported having sought and received additional funding to support online testing during the 2007–2008 school year. The funds came primarily from three sources.

- Internal district funds (83 districts)
- eRate (73 districts)
- State funds (61 districts)

- Three hundred and five districts (25% of responding districts) reported that they would be seeking funds during the 2008–2009 school year to support online testing. Districts expect that the funds will come from five primary sources.
  - Internal district funds (181 districts)
  - State funds (158 districts)
  - eRate (142 districts)
  - State grants (110 districts)
  - Federal grants (107 districts)
- One-third (33%) of districts reported that their computers are typically replaced within four years or less. Almost half of all districts (47%) reported that their computers are replaced after five years or more, and another 20% of districts reported that they do not have a specific cycle for replacement of computers.

Figure 3.5—Districts' Typical Computer Replacement Cycles

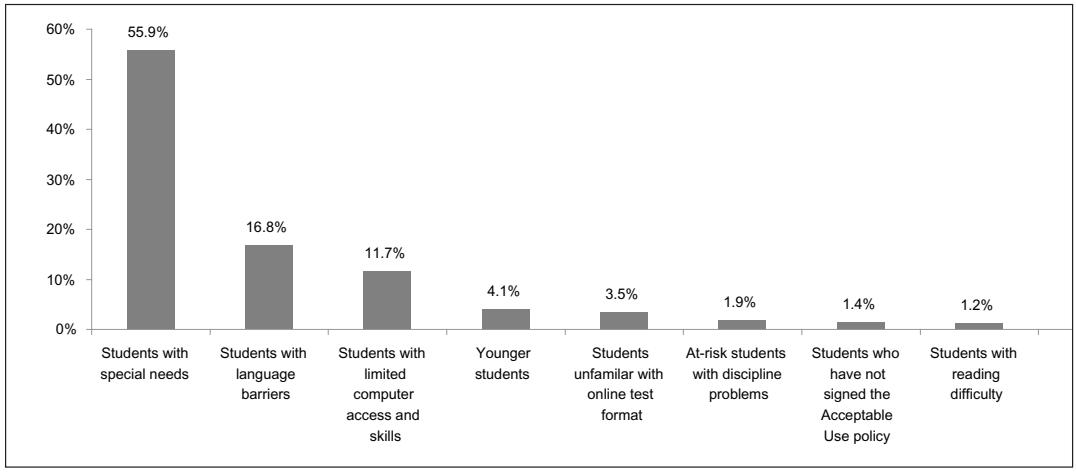


For detailed summaries of district responses to the financial-consideration questions, refer to Tables 5.10–5.21 in Appendix 5.

District and Campus Perceptions of Online Statewide Testing. Several district- and campus-level survey questions were designed to gather information about the perceived strengths and weaknesses of moving to full-scale online testing. The findings are summarized below.

- In aggregate, districts and campuses were mostly split as to whether the advantages of online statewide testing outweigh the disadvantages. Overall, 48% of the responding districts perceived more advantages than disadvantages, as did 50% of the responding campuses. (Note: Smaller districts and campuses make up a larger percentage of all districts.)
- The top three advantages of online testing, as perceived by both districts and campuses, were
  - a reduction in the amount of printed materials handled by staff (indicated by 87% of the districts and 86% of the campuses);
  - rapid reporting (82% districts, 79% campuses); and
  - reduced handling of secure materials (82% districts, 80% campuses).
- The top three online testing challenges, as perceived by districts and campuses, were
  - increased technology burden (84% districts, 80% campuses);
  - not enough computers (82% districts, 83% campuses); and
  - the necessity of providing backups/alternatives in the event of system failure (79% districts, 74% campuses).
- Figure 3.6 indicates that campus administrators expect that students belonging to special populations will experience heightened challenges with online testing. In particular, 56% of campus responses suggested concerns regarding students who require accommodations.

Figure 3.6—Student Groups That Campus Administrators Perceive Will Have Problems with Online Testing*



*Campus Question C32: "If the answer to question 31 ('Do you anticipate any specific population of students having particular difficulty with online state testing?') is 'yes,' please identify the group(s) you think will have particular difficulty with online state testing and explain why."

In summary, approximately half of the districts and campuses reported that they believe that moving to online testing will yield more benefits than challenges. Districts and campuses across the state express similar views about the most pressing advantages and disadvantages of online testing. Particular attention may need to be given to the student groups that campuses consistently identified as potentially having difficulty with online testing, specifically, students with special needs.

For detailed summaries of district and campus responses to questions about online testing, refer to Tables 5.35–5.37 and 5.79–5.82 in Appendix 5.

SECTION 4. CASE-STUDY FINDINGS

Case studies were developed as a complement to the statistical, quantitative data gathered through the online campus and district surveys. The case studies provide descriptions of the online testing experiences of six Texas school districts and several campuses within each district. The section below highlights the major themes that emerged from interviews with key district and campus personnel and from direct campus observations. It also provides insight into the unique challenges faced by districts of different sizes, geographic locations, and demographic makeup.

Participants

In the June 2008 announcement of the online survey, districts were offered the opportunity to participate in in-depth case studies on a voluntary basis. The research team received 102 responses from districts volunteering to participate. A list of recommended districts was developed from the pool of volunteers and submitted to TEA for final selection. The goal of selection was to identify districts that represented a cross-section of districts statewide. Selection criteria included geographic area, enrollment counts, previous experience with online testing, district demographics, and the district's intention to participate in the online administration of the July 2008 TAKS exit level retest.

The six participating districts then selected key personnel and campuses to participate in the observation/interview process. Using an observation/interview protocol developed for the study, researchers conducted one- to two-day on-site interviews. For two of the districts, site visits were scheduled to coincide with participation in the online July TAKS exit level retest.

A high-level summary of each district's characteristics is provided below.

Dallas ISD is a large urban district in the northern part of the state. With an attendance boundary of 384 square miles and a student population of more than 160,000 students, Dallas is the fifteenth-largest school district in the United States (according to the National Center for Education Statistics, June 2008). The district is composed of 157 elementary schools, 31 middle schools, and 37 high schools (including alternative and magnet schools). Its student and teacher populations are highly diverse and reflect the cultural, ethnic, and socio-economic makeup of the community in which the district is located. Students who attend the various schools in Dallas come from homes where more than 70 languages are spoken collectively. Researchers interviewed district technology and assessment personnel and conducted on-site observations and interviews at two elementary schools and one high school in the district.

United ISD is a mid-sized district located in the southern region of the state. Although about half the district is situated in a mid-size border city known as a transportation hub into Mexico, many of the students and their families live ten to fifteen miles away in rural communities and neighborhoods. United is composed of 43 schools, with an enrollment of slightly more than 37,000 students. The district contains 26 elementary schools, nine middle schools, four high schools, three magnet schools, and a Science and Technology Education Program (S.T.E.P.) Academy. The diversity of the teachers in the district reflects the makeup of the community in which the district is located. Researchers interviewed district technology and assessment personnel and conducted on-site observations and interviews at two elementary schools and two high schools in United.

Houston ISD is a large urban district located in the south central region of the state. With a student population of more than 200,000 students, Houston is the eighth-largest district in the country (National Center for Education Statistics, 2008). The district has more than 300 schools organized into five geographic areas (North, East, South, West, and Central). The diversity of the teachers in Houston reflects the makeup of the community. Researchers interviewed district technology and assessment personnel and conducted on-site observations and interviews at two high schools in the district.

Tornillo ISD is a small rural school district located in the southwestern part of the state, next to the Mexico border. The district serves approximately 1,200 students. Tornillo is composed of one high school, one intermediate school, one middle school, and one elementary school. The diversity of the teachers in the district reflects the makeup of the community in which the district is located. Because of the small size of the district, school-based administrators have district-level responsibilities. Researchers visited and conducted interviews with technology and assessment personnel at all four campuses in Tornillo.

Conroe ISD is a suburban district located in the south central region of the state. Conroe is composed of 50 schools serving more than 45,000 students. The diversity of the teachers in the district generally reflects the makeup of the community, although Hispanic, African American, and Asian teachers are somewhat underrepresented compared with the district's student population. In addition to interviewing six district technology and assessment personnel, researchers conducted interviews and on-site observations at two high schools in Conroe.

Amarillo ISD is a mid-size district located in the northwest quadrant of the state. The district serves a metropolitan area of 230,000 people and encompasses an attendance area of about 70 square miles. The district serves more than 30,000 students and is composed of 37 elementary schools, twenty middle schools, four

high schools, one alternative school, and a specialty high school that accepts students from the city in which the district is located. Amarillo's student and teacher bodies are increasingly diverse and reflect the makeup of the community in which the district is located. Researchers interviewed district technology and assessment personnel and conducted interviews and on-site observations at one elementary and two high schools in Amarillo.

Table 4.1—Participating District Overview

District	Characteristics	Size (in student enrollment)	Student Ethnicity (by percent)	% Economically Disadvantaged	% LEP
Dallas	• Large • Urban • Geographic location, North Texas	160,000+	African American 29.6 American Indian 0.2 Asian 0.9 Hispanic 64.2 White 5.0	84	31
United	• Mid-size • Mix of mid-size city and rural areas • Geographic location, South Texas	37,000+	African American 0.2 American Indian 0.0 Asian 0.5 Hispanic 97.7 White 1.6	73	50
Houston	• Large • Urban • Geographic location, South Central Texas	200,000+	African American 29.2 American Indian 0.1 Asian 3.1 Hispanic 59.3 White 8.3	80	33
Tornillo	• Small • Rural • Geographic location, Southwest Texas border	1200+	African American 0.7 American Indian 0.0 Asian 0.6 Hispanic 98.3 White .4	97	50
Conroe	• Mid-size • Suburban • Geographic location, South Central Texas	45,000+	African American 6.6 American Indian 0.5 Asian 3.0 Hispanic 24.9 White 65.0	32	11
Amarillo	• Mid-size • Metropolitan • Geographic location, Northwest Texas	30,000+	African American 11.3 American Indian 0.3 Asian 2.7 Hispanic 40.2 White 45.5	60	10

Themes

For the case study, data were gathered in three ways: participant interviews using a specific set of interview questions developed for district or campus visits, observational techniques using multiple trained observers, and online survey responses provided by the districts and campuses. The research team

conducted an inductive analysis of the data, allowing themes to emerge from the participants' responses. As researchers conducted the analysis, several themes common across districts surfaced, as well as some additional themes that are important but prevalent in the data of only one or two districts.

The next two sections, "Benefits of Online Testing" and "Challenges of Online Testing," divide emergent themes into an organizational framework.

Benefits of Online Testing

1. **Eases the test administration process.** All districts reported that online testing would dramatically ease the test administration process and reduce the burden on district and campus testing coordinators by reducing the amount of space, time, and effort needed to count, collate, pack, store, and ship test booklets.
2. **Provides timely feedback.** All districts had the expectation that online testing will provide more timely feedback (that is, test results would be available sooner), which could possibly increase student motivation. Although the participants were told that high-stakes testing might require a comparability analysis and statistical equating before any scores could be released, nearly everyone interviewed expected that they would receive results more quickly with online testing.
3. **Maintains student interest in test taking.** Nearly all districts thought online assessment helped maintain student interest while testing. District and campus personnel made comments about students enjoying online tests more than paper-and-pencil tests. Several anecdotes were reported about students falling asleep during paper testing but paying attention during online testing.
4. **Reduces test procedure errors.** Most districts reported that online testing reduces the potential for error on the part of both students (incorrectly bubbling scannable answer documents, skipping questions) and district test administrators (mislabeling answer documents, returning incorrect materials, or breaching test security).
5. **Promotes long-term cost savings.** Several districts believed that online testing would eventually provide long-term costs savings for school districts as well as the state as the need for printing, shipping, and scoring test booklets could eventually be eliminated.
6. **Increases the focus on technology.** Two districts thought online testing would increase the focus on technology. Specifically, districts reported that online assessment would help their students develop better

technology skills and possibly increase the number of computers at the school, which could be used for instructional purposes when not being used for testing.

7. **Provides better access to student testing information/scores.** Two districts thought online assessment would provide them with greater electronic access to the data that informs instructional decision-making.

8. **Meets the needs of different types of learners.** Two districts indicated that online testing meets the needs of different types of learners. One district indicated that its students with attention deficit hyperactivity disorder (ADHD) did well testing online.

Challenges of Online Testing

1. **Lack of computers/equipment**. All districts stated that their schools currently lacked sufficient numbers of computers/equipment for online testing. Some districts were able to specify the exact number of computers they thought they would need in order to comply with full-scale online testing, while other districts were unable to make such an estimate.

2. **Lack of sufficient Internet bandwidth and support.** Many school administrators indicated that the Internet connections in their schools are not robust enough to support testing large numbers of students online at one time. Each district provided examples of connectivity and network problems that they have experienced or expect to experience if online testing increases. These problems included issues related to telephone connections, bandwidth, servers, bandwidth-reducing measures (such as caching), and Web-based testing.

3. **Lack of space and facilities infrastructure**. Lack of space emerged as a general concern. Large numbers of regular classes have had to be moved to the library or other common area to accommodate space for online testing. In some cases, students needed to be transported by bus between campuses to test online. Several districts said they would need infrastructure improvements, including rewiring schools for electricity and Internet connectivity to accommodate large-scale online testing. The oldest buildings may need substantial upgrades to allow for significantly greater computer and electrical capacity, including additional transformers and air-conditioning units.

4. **Personnel issues.** All districts discussed critical personnel issues related to online testing in their districts. Districts primarily focused on the amount of technical support each school would need in order to test online, identifying issues such as the need for district technical support

during testing, the amount of setup time required by their technology departments, the extra time that would need to be spent by technology lab teachers to prepare computers, and the need for technology support for the installation of updates. Districts were concerned about being able to supply sufficient numbers of certified teachers trained in online procedures who could act as proctors, particularly during testing windows when paper and online testing run concurrently.

5. **Need for training.** All the districts discussed the need for technology training for test administrators, teachers, and students to increase their comfort level with online testing technology and to minimize anxiety. Interview participants also mentioned that it would be necessary to train students on the use of test-taking procedures in an online environment.

6. **Scheduling challenges.** All the districts described scheduling challenges related to online testing. Because there are no time limits for the tests, it is not possible to schedule more than one student per computer per day. Moving students and/or computers to different classrooms was very difficult for many schools. Organizing and scheduling computer access to accommodate hundreds of students was found to be extremely challenging.

7. **Displacement of students in instructional classes.** Nearly all the districts discussed the difficulty of balancing instruction and testing. When computer labs must be used for testing, students in technology courses lose access during the testing period. Several districts reported that one or more academic or technology classes had to be moved to a library or gym for several weeks during previous online test administrations so that the computer lab could be used as a testing site. Students lost instructional time because of room shuffling and schedule disruption. Several districts also argued that developing computer labs dedicated to testing would put students at a disadvantage by requiring them to test in unfamiliar surroundings.

> "Last year we had to kick seven teachers out of their labs for three days. Even if we were aggressive about our testing schedule, in 2014 it would take two weeks to do all the testing online. We can't kick people out of their classrooms for two weeks. It's just a huge problem. I cannot imagine how we could get even just the third grade kids tested. It would take days, which means the library would be shut down totally—there's just no place else. Can't use the cafeteria because lunch starts at 10:30, plus the wiring isn't right. For me, doing what I do, that's the

> biggest thing . . . where would we do it? How would we ever get all these kids tested?"

8. **Cost.** Nearly every district referred to cost as being a concern. Districts expected increased expenditures for computers and equipment, additional training, and improved infrastructure. One district pointed out that it had calculated that electricity costs would increase significantly if all schools in the district tested online. Districts indicated that, in addition to start up costs, they would need to set aside new monies each year to purchase replacement computers and equipment. All districts expressed concern about where to find funding to address the initial start-up costs and to pay for the ongoing maintenance of the technology.

9. **Digital gaps/unequal access to computers or technology skills**. The majority of districts discussed digital gaps, such as lack of equitable access to computers and the technology skills necessary for online testing, as being an impediment to online testing. Most of the differences were attributed to the socio-economic status of the students; students from low socio-economic families have limited access to computers outside school and were reported to experience anxiety related to online testing. Several districts also mentioned digital differences by achievement and grade level. Some districts argued that younger (elementary) students were more technology savvy than middle or secondary school students, while other districts believed that younger students might have more difficulty with the hand-eye coordination required to manipulate the mouse or type on a keyboard.

> "My perception is . . . we've been doing some surveys of technology in schools. We're seeing a pattern: On campuses where students tend to have more access to computers *out* of school, we're seeing more computers *in* the school. My hunch is that if students are coming into school and they're already tech savvy, there's more pressure on the school to have technology. The concern is, we don't want online testing to widen the gap between affluent and less affluent students."

10. **Security.** Three districts mentioned security concerns as a potential challenge. Issues included fears that students might attempt to hack into the testing system; that laptops may not be as secure as desktops in a testing situation; that students might be able to see other students' computer screens during testing; and that if testing periods are staggered, students who take the test first might reveal information about test questions to other students.

11. **Inability to provide students with necessary accommodations.** Three districts, two with large numbers of limited English proficient (LEP) students and one large urban district, expressed concerns about assisting students with special needs. In particular, districts were concerned that they would be unable to support the large number of LEP students who would be testing. In addition, the large urban district expressed concern about the feasibility of conducting online testing at alternative campuses.
12. **Difficulty in coordinating between assessment and technology departments.** One district expressed concern about the challenges of coordinating online testing activities between its assessment and technology departments.

Summary of Case-Study Findings

The following is a summary of the key issues and findings that emerged from the case-study analysis.

Issue: Implementation timeline and barriers to implementation

The six districts involved in the case study recognize the value of online testing; however, they expressed the belief that full-scale online testing is something that cannot happen quickly. Specifically, the districts believe a phase-in plan spanning several years is essential in order for them to be ready for online testing. Lack of computers, limited space for online testing, minimal infrastructure to support technology, the need for teacher training, and personnel issues related to a lack of technology support were serious obstacles that districts believe have to be addressed before expanded online testing can be implemented.

Issue: Technology challenges and differential effect on districts

Although all districts voiced similar concerns, technology-rich districts view these concerns differently from technology-poor districts. For example, in discussing technology infrastructure challenges, Tornillo ISD (small, rural) revealed problems in even accessing the Internet. Conversely, in discussing technology infrastructure concerns, Conroe ISD (mid-size, suburban) was concerned with how many hits their Web server can handle. This example seems to suggest that the amount of financial and expert technical assistance each district will need in order to implement full-scale online testing may need to be considered on a case-by-case basis.

Issue: Space constraints and the potential for instructional class displacement

The logistics of scheduling space for online testing is a major problem mentioned by the six districts studied. Disruption to instructional and technology classes was a general concern. Districts offered few solutions for mitigating the problems associated with testing logistics. Strategies must be identified in order to address these concerns.

Issue: Digital Gap

Another issue highlighted by districts is the perceived "digital gap" between students from high and low socio-economic backgrounds. One district respondent believed that schools that have students who have access to technology at home are more likely to have technology resources at school. In general, districts were concerned that the digital gap not widen. One respondent, for example, stated, "Some kids are more comfortable with paper-and-pencil testing, while others would be just fine with the computer, but we're trying here to level the playing field for *all* students." This is another area where strategies must be developed to address this concern.

Issue: Differential impact on students

The complexity of the issues associated with online testing can be illustrated by using an example from United ISD (mid-size, partially rural). United argued that while online testing was extremely beneficial for their students with ADHD, many of their English language learners (ELLs) would not do as well with online testing as with paper-and-pencil testing. They believed their ELL students had low comfort levels with technology because many of them lived in housing that lacked basic technology infrastructure. In addition, many of these students are learning a new language, not just technology skills.

One school administrator from United related an anecdote about a young girl who came to school each day with wet hair, which she dried under the school restroom hand dryer because her house had no electricity. The school administrator shared this story to point out that technology is not necessarily a major concern or even relevant for many of her students. On the other hand, some respondents noted that the potential for differential impact might be minimized by additional exposure to technology, including introduction to online testing technology, within the classroom.

Summary of District Perceptions

Although all six districts expressed concern about full-scale online testing, there were also respondents who were enthusiastic about the possibilities opened up by online assessment, provided that the appropriate tools and resources are available. As one respondent put it, "I think it [full-scale online testing] would be pretty difficult to do . . . but we do the best we can, and if there's consensus that that's what we need to do, we'll work to achieve it."

SECTION 5. INTERPRETATION/DISCUSSION

In this section, results from both the survey and case studies are interpreted and compared. For organizational purposes, this section is structured around six high-level themes that are similar in nature to those examined by the survey and that emerged from both the statewide survey and the case studies: Internet connectivity, computers and equipment, facilities and space, staffing, training, and perceptions.

Internet Connectivity

Both the statewide survey responses and the case studies strongly suggest that problems with Internet connectivity could be an obstacle to implementing full-scale online testing. Two types of problems with Internet connectivity were commonly reported.

- Internet connections at testing sites do not have enough bandwidth (the amount of data an Internet connection can send or receive in a given amount of time).
- Campuses have insufficient network infrastructure (for example, switches and routers) to route data between local campus computers and connect to and from the Internet.

Bandwidth problems are typically referred to as "congestion." Congestion occurs when software or computer performance is negatively affected by the volume of requests to send or retrieve data from a local network or through an Internet connection. This often results in greater wait-times for users and sometimes causes Web and software applications to be unable to connect. There are three general approaches to addressing bandwidth congestion problems: 1) purchase greater bandwidth as part of an overall connection to the Internet, 2) upgrade the district's network infrastructure, especially around localized points of congestion, and 3) find ways to reduce the overall network traffic within the district, such as by using caching mechanisms, which allows identical content to be accessed by many users at the same time inside the district network.

The appropriate solution to any particular district's bandwidth problems will depend on a number of district-specific factors. Purchasing a larger Internet connection, while often the simplest way to overcome bandwidth congestion, is not always economically feasible. This solution is also appropriate only for bandwidth congestion that is experienced throughout the district's network as a whole.

When bandwidth congestion problems are not distributed equally throughout a district's network, improving network infrastructure may be a more appropriate solution. Districts may need to identify local points of congestion and upgrade any network devices that are causing problems.

As mentioned above, one solution that districts could consider is to use caching mechanisms to reduce overall network traffic. Caching mechanisms allow a district to place "mirrored" Internet content within its own network. Mirrored, or cached, content is common content that would be needed simultaneously by multiple users, such as the content supplied for online test administrations. In the case of online testing, districts can configure test caching stations, also known as proctor caching. Without caching, every student's computer generates the same requests for test files, increasing the amount of traffic within the district's network and out to the Internet. When test caching stations are used, total network and Internet traffic is reduced. Test caching software usually has the same technical requirements as the testing software itself, so the same kinds of computers can be used. However, for some districts, allocating computers for test caching may represent a further expense associated with online testing.

Another option for reducing overall bandwidth and network traffic is to extend testing windows, thereby allowing districts to spread out over multiple days the total traffic typically needed for a single day of testing. The current statewide assessment model, which requires all students to test on the same day, could be modified to mitigate bandwidth problems at the district level.

Financial considerations can prevent districts from acquiring increased bandwidth for campuses. One of the case-study districts noted that its bandwidth costs have increased from $800 to $10,000 per month in recent years, and yet even with 600 Mb/s of total bandwidth now available to the district, the campuses still consider themselves to be bandwidth challenged.

Based on survey results and case-study findings, researchers concluded that Internet connectivity issues will need to be solved by addressing bandwidth and network hardware limitations. Researchers found that ignoring bandwidth needs for Internet connectivity at the campus level would significantly limit a successful move to online state testing.

Computers and Equipment

In both the survey and the case studies, districts reported that they need access to an adequate inventory of computers and equipment to be able to test all their students online. Per the estimates shown in Table 5.1, approximately 6% of campuses would have enough computers to move to online testing if online testing follows the current paper-testing model of a one-day window per test.

However, similar to the bandwidth issues discussed above, the number of computers required for online testing decreases dramatically if testing windows are increased beyond one day and/or if more than one test can be administered on a single computer during a testing day.

Survey results indicate that there are an estimated 933,000 computers currently available at campuses statewide for online testing in Texas. By examining TEA's campus enrollment data and the reported number of computers at each campus, researchers were able to compute an estimate of the percentage of campuses with sufficient computer resources to administer online tests under various testing scenarios. Table 5.1 summarizes the results for four such scenarios.

Table 5.1 Statewide Percentage of Campuses Currently Having Enough Computers to Test All Students Online

Testing Window	Tests per Day	Student-to-Computer Ratio	% of Campuses Computer Ready
1 day	1	1:1	5.9%
1 day	2	2:1	23.3%
1 week	1	4:1	53.5%
2 weeks	1	8:1	79.7%

Calculations of the number of campuses with sufficient computer resources assume 100% of the testing population to be assessed would test online.

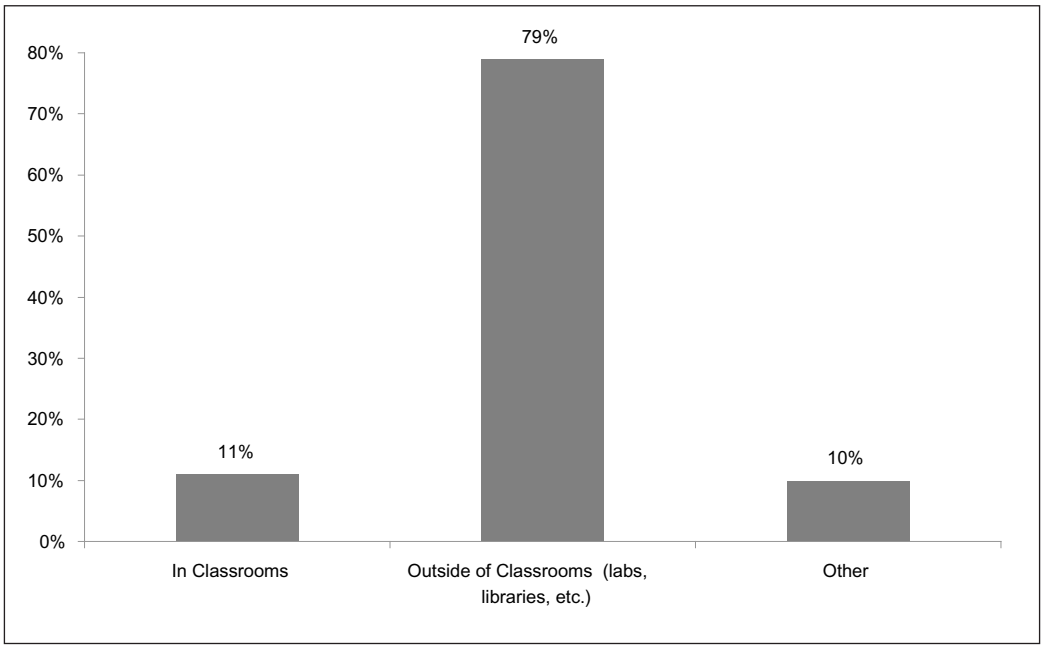
Only a small fraction of campuses are currently ready to test all students in the same day. However, if the structure of the assessment program were changed to allow for either multiple test sessions in a day or extended testing windows, most campuses already have enough computers to administer online tests to their entire student population over a one-week testing window. Specific challenges, such as providing access to technology for students needing accommodations and supporting campuses with outdated computer resources, need to be addressed for this estimation of online readiness to be valid. Additionally, security concerns related to extended testing windows would need to be addressed.

Facilities and Space

Officials representing all six case-study districts indicated that finding enough space for online testing is an ongoing problem for many campuses. Districts reported that during the 2007–2008 school year, almost 80% of the students who participated in online testing took their tests in a setting outside of the

classroom, such as in a computer lab or school library. This breakdown is illustrated in Figure 5.2.

Figure 5.2—Location of Computers Used for Online Testing in 2007–2008*



*Question 11: "If this campus participated in online testing during the 2007–2008 school year, indicate where the computers used for online state testing were located."

Districts also reported that of the computers currently available for online testing, approximately 40% are located in classrooms. Case-study observations indicate that many of these computers are distributed throughout school classrooms, usually with only a handful of computers per room. To make effective use of these computers for online testing, campuses might need to collect the computers, move them to testing locations, and then return them to the various classrooms after testing is completed. Moving computers around a campus would be a logistical problem if full-scale online testing is implemented. This concern may partly explain why districts and campuses indicated that campus technology staff would need to be augmented if full-scale online testing occurs. Case-study districts also indicated that rearranging classroom computers for online testing disrupts instructional time, especially for classes that rely on computer-based instruction for most or all of their curriculum.

Case-study feedback and survey response data suggest that a move to full-scale online testing may require that campus computers be consolidated into centralized testing locations. Alternatively, additional computers could be purchased for testing locations to offset classroom disruptions. However, simply adding more computers poses space challenges for many campuses.

Online testing requires desks that accommodate computers, enough space between computers to prevent test answers from being visible to neighboring students, electrical wiring, and Internet cabling for each computer, except where wireless networking is deployed. School officials interviewed in the case studies indicated that for many campuses the problems of space during online testing would actually worsen if additional computers were purchased.

Another challenge faced by districts appears to be electrical power infrastructure. Although electrical infrastructure was not directly assessed by the statewide survey, the issue of inadequate electrical infrastructure was mentioned more than 40 times in the open-ended comments provided by districts as part of the district survey; the issue was also mentioned repeatedly during the case-study interviews.

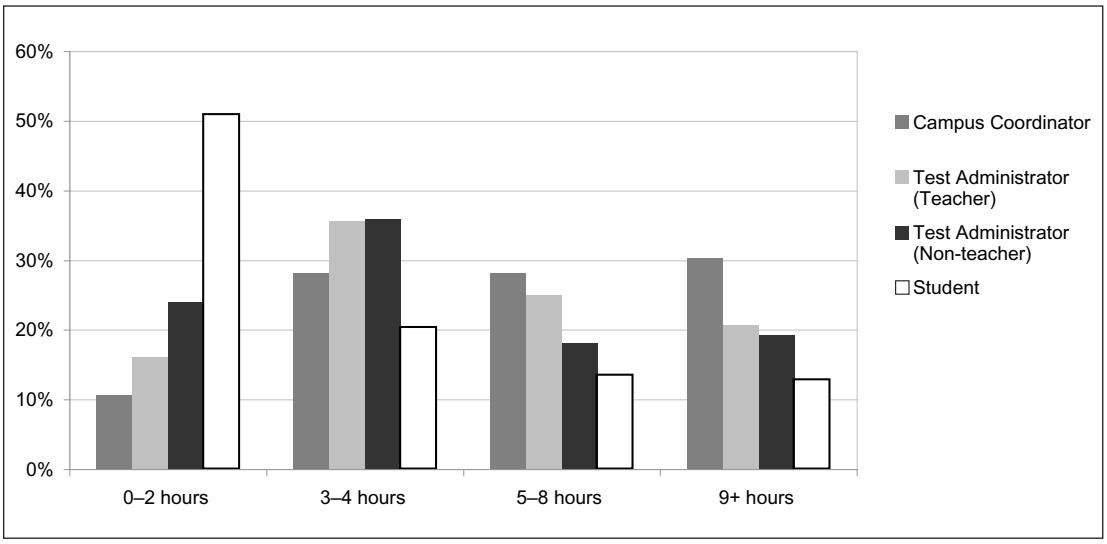
Staffing

Both survey respondents and case-study participants stressed that any move to full-scale online testing will require additional teacher proctor and technical staff. Case-study results indicated that all participating districts would need to address staffing issues, although most of the districts focused primarily on the need for additional technical support and computer lab staff, not test administrators. Conversely, one district raised the possibility that some staffing needs might be reduced with full-scale online testing; for example, the number of personnel required for warehouse staffing and paper-handling responsibilities would decrease.

Training

District-level survey respondents reported that additional trainers would be needed in order to train test administrators for online testing. Campus-level respondents reported that teachers, non-teacher personnel, campus coordinators, and students would need significant amounts of time for training each year, although students were seen as needing the least amount of training (see Figure 5.3).

Figure 5.3—Reported Hours of Training Needed Annually by Campuses to Move to Full-Scale Online Testing*



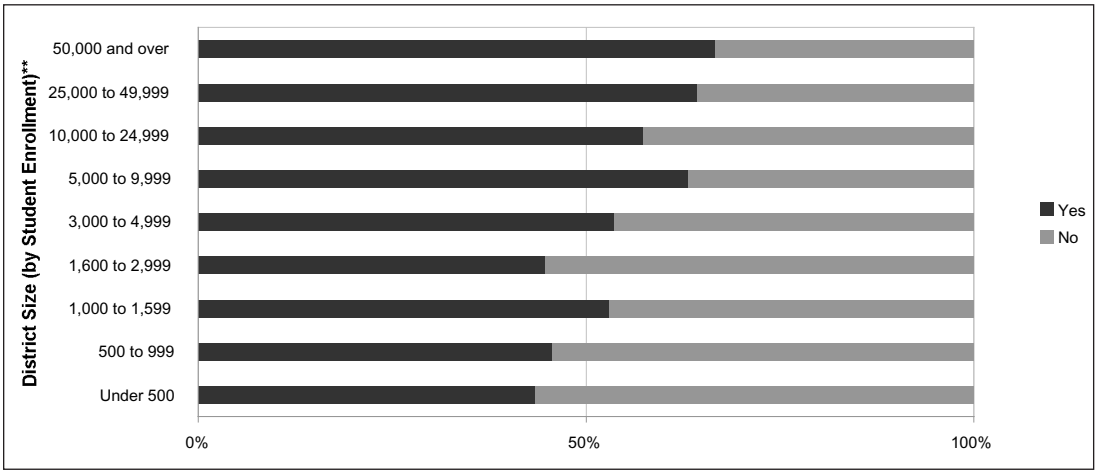
*Campus Questions C27 through C30 had a similar construct: "To move to all-online state testing, how much training would [a group] at this campus need?"

The need for training was strongly echoed in the case-study results. Every district indicated additional training would be required before a move to online testing could occur. Some possible training topics emerged from the case studies: overcoming discomfort with technology; training of teachers, staff, and students on the online testing software; and test-taking strategies in an online environment.

Perceptions

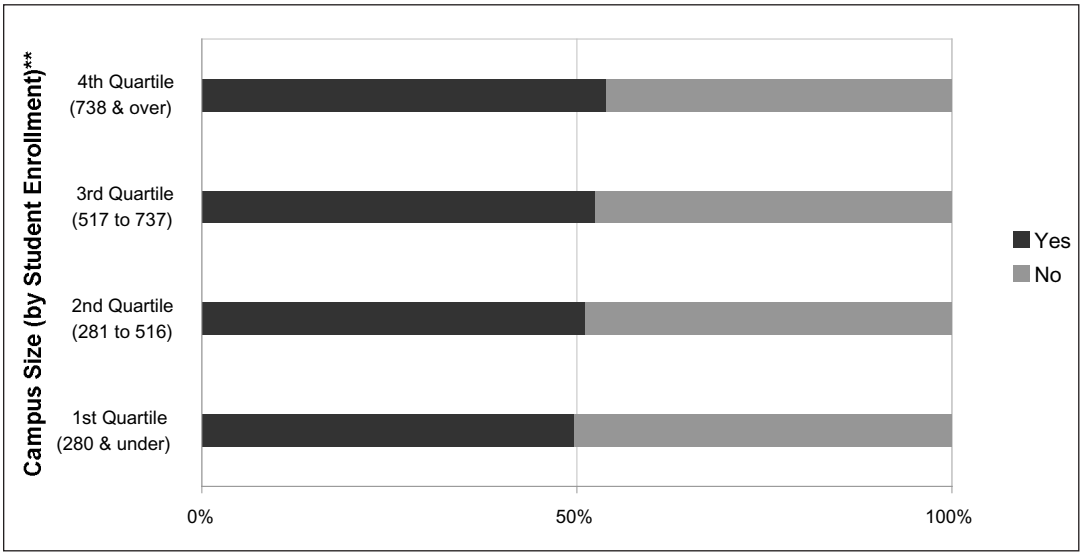
Statewide survey results showed that roughly half of campus- and district-level respondents perceive that the overall benefits of online testing outweigh the challenges, as shown in Figures 5.4 and 5.5. However, when the data are broken into categories based on district and campus size, a trend can be seen: large districts and campuses were more likely than smaller districts and campuses to perceive that the benefits of online testing outweigh the challenges. It also should be noted that by percentage, small districts and campuses dominate both district and campus size categories.

Figure 5.4—District Perceptions of Whether Advantages Outweigh Challenges for Online Testing*



*District Question D35: "Overall, do you perceive that the advantages of online state testing will outweigh the challenges for this district?"
** District counts for the above figure were: 444 for the "Under 500" category; 241 for "500 to 999"; 132 for "1,000 to 1,599"; 125 for "1,600 to 2,999"; 82 for "3,000 to 4,999"; 76 for "5,000 to 9,999"; 47 for "10,000 to 24,999"; 28 for "25,000 to 49,999"; and 15 for "50,000 and over."

Figure 5.5—Campus Perceptions of Whether Advantages Outweigh Challenges for Online Testing*



*Campus Question C35: "Overall, do you perceive that the advantages of online state testing will outweigh the challenges for this campus?"
** Campus counts for the above figure were: 1,870 for Quartile 1, 1,934 for Quartile 2, 1939 for Quartile 3, and 1943 for Quartile 4.

Despite the many challenges of online testing identified by districts, all participants in the case-study interviews discussed how a move to online testing could dramatically ease the overall burden of the test administration process.

However, this reported belief may not signal overall approval for moving to full online testing.

The case-study interviews and the survey found that districts believe that one benefit of online testing would be a reduction in the amount of time it takes to receive student test results. This potential benefit was identified in each of the case-study districts, by 82.3% of respondents of the district-level survey, and by 78.8% of campus-level respondents. However, the immediate or rapid return of students' scores is not always possible even with online testing, such as when comparability and statistical validity checks are required, which is common with high-stakes testing.

Roughly one-third of survey respondents reported that increased student motivation is a perceived advantage of online testing. This perceived benefit also was discussed in some of the case-study interviews.

SECTION 6. OPTIONS AND COSTS

Cost Factors

The analysis of the survey and case-study data identifies the following four areas of district and campus readiness that would need to be addressed as the state transitions from paper-based to online assessments.

- Computer capacity readiness—ensuring enough computers are available for the enrolled student population
- District and campus infrastructure readiness—meeting minimum infrastructure requirements for network bandwidth and the electrical demands placed on school buildings
- Personnel readiness—staff training
- Ongoing operational readiness—planning for the annual updates and costs associated with district technical support, computer replacements, and usage costs, such as electricity

These factors determine the capacity of the state and its school districts to transition to online testing.

Computer Capacity Readiness. Assessing the online testing capacity of the more than 1,200 Texas school districts requires a campus-by-campus approach. Each campus survey asked respondents to identify the number of computers currently available for student use for online testing. Computers identified as such had to meet both minimum technology requirements and also be appropriate for student use in a testing environment. By combining the information from the campus surveys with publicly available campus enrollment data, a current student-to-computer ratio can be derived for each campus that participated in the survey. From this information, it can also be determined how many additional computers would need to be added to each campus to ensure sufficient capacity for testing.

To assess any campus's computer capacity readiness, a target student-to-computer ratio must first be determined. This target ratio would take into account a number of factors, such as the length of the testing window, the number of different tests a student must take within any given window, and whether the tests have time limits, which would allow for multiple test sessions per computer per day.

Each of these factors is associated with a trade-off that should be considered within the context of the overall assessment program. For example, longer

testing windows allow schools to test students using fewer computers but may also necessitate additional security measures, since students who test early may attempt to pass on information about the test to students who test later. One common way of protecting test security from the risks that accompany longer testing windows is to administer multiple versions of each assessment, but to do so would require additional test item development costs and field-testing, placing a heavier burden on the state, school districts, and students. In addition, longer testing windows may also create a greater instructional impact on campuses, since computers would be occupied for a longer period of time.

District and Campus Infrastructure Readiness. All but the most recently built school buildings in this state were designed without sufficient electrical and/or environmental control (air-conditioning) capacity to support more than a handful of computers in most rooms. Adding large numbers of computers, especially when they are concentrated within a single classroom, can require additional wiring at a minimum, and for the oldest of buildings, may require additional transformers, air-conditioning units, and other significant building upgrades. Additionally, many schools in Texas make use of temporary buildings erected outside the permanent structure of the school itself. The electrical and environmental infrastructure for these portable classrooms can be highly variable.

The survey did not attempt to create a building-by-building statewide inventory of the required upgrades to facilities infrastructure. However, the statewide costs of acquiring the number of additional computers associated with each of the four proposed options have been estimated and are included as part of the calculation of the costs for each option. (See "Side-by-Side Cost Considerations of Options 1–4" below.)

In addition, estimated costs are provided for the improvements to network infrastructure required to accommodate a larger number of computers accessing the districts' networks. These monies may need to be spent on upgrades to the districts' overall bandwidth, on switching and other network upgrades, or on the purchase of additional computers for test caching to reduce the overall bandwidth demand on the districts' networks.

Personnel Readiness. Districts and campuses currently devote significant amounts of time to training personnel on all aspects of test administration, including the handling of secure materials and other security requirements. Survey responses indicate that most districts expect that online testing may ultimately result in an overall reduction in the total number of staff hours and personnel currently required to administer paper-based tests. However, districts believe that significant retraining of assessment and technology personnel will be required in order to successfully administer online tests. The options

presented here assume estimated transition costs for teacher and staff training commensurate with the total number of students transitioning to online tests.

Ongoing Operational Readiness. In addition to the transition costs necessary in any conversion from paper- to computer-based assessments, there will be ongoing costs associated with maintaining a district's or campus's readiness for each subsequent year's online assessments. Chief among these is the need to replace aging computers. Based on the data from the survey, it can be assumed that approximately one-fifth of the computers required would need to be replaced annually with new hardware. Additionally, districts would bear the costs for the technical support required to maintain the increased number of computers at readiness capacity and to assist test coordinators and administrators during online testing periods. Furthermore, the costs associated with power and utility use during testing periods should be factored in as an annual cost to districts.

Implementation Options

Based on the findings from both the statewide district and campus surveys, as well as from the in-depth case studies, the following four options for implementation have been prepared for consideration.

Option 1—Full Transition to Online Testing Under the Current TAKS Structure

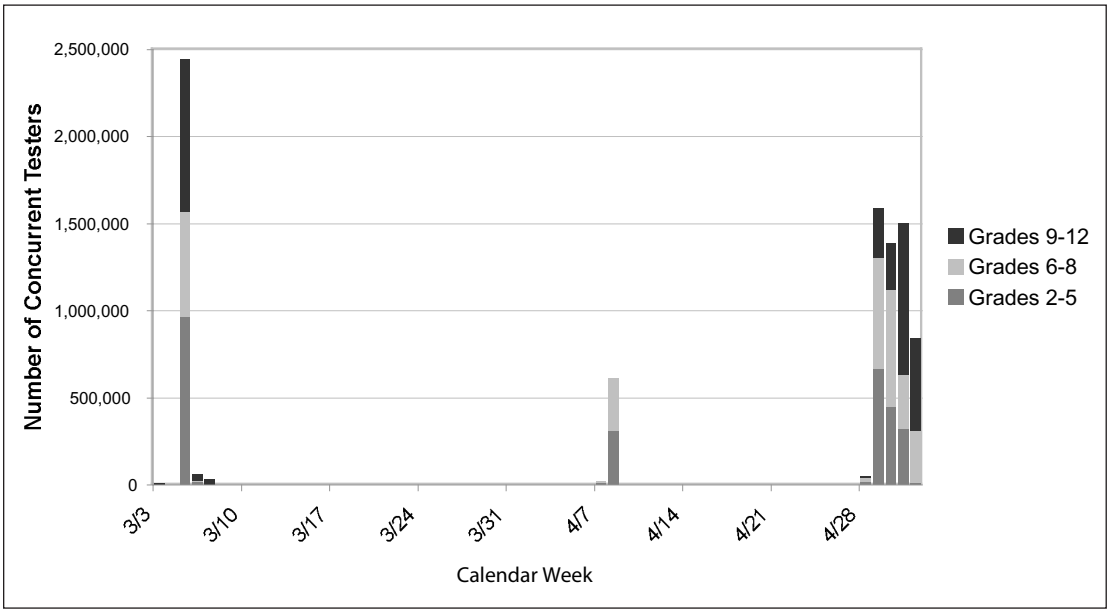
TAKS is currently administered to students in one-day windows for each test (with exceptions that allow more time for students with dyslexia or linguistic accommodations, for example). Under the current structure of the assessment system, a full implementation—all grades and subjects—and transition of the state's TAKS program from paper to online would require a very large influx of new computers and technology infrastructure to districts and campuses.

The minimum number of computers for necessary capacity readiness can be identified by looking for the single day with "maximum load"—the largest number of examinees who take a test at the same time. The maximum load of testing during the 2007–2008 school year occurred in March with the administration of TAKS grades 3, 5, and 8 reading; TAKS grades 4, 7, 9, and 10 and exit level writing/reading/English language arts; and the TAKS exit level retest in English language arts. More than 2.6 million students tested on that day.

In order to support such a level of online testing, districts would need to have one computer for every student testing on a given day (a 1:1 student-to-computer testing ratio). However, even with a full transition to online testing, an allowance should be made for approximately 9% of students statewide who

may require specific paper-based accommodations (such as for TAKS–M, braille, or large-print versions of each test), as well as for students who are exempt or absent on the day of testing. Figure 6.1 illustrates the maximum testing load associated with 91% of the student population requiring a 1:1 student-to-computer ratio, based on student demographic information from the 2007–2008 school year. The graph shows the number of computers that would be needed on each day of the spring testing season, from March through April.

Figure 6.1—Option 1: Testing Loads Under Current TAKS Structure



Under the current structure of the TAKS student assessment program, the maximum load of students who would need to be supported statewide is in the first week of March, during which all third through twelfth graders (with the exception of sixth graders) test at least one day.

Under Option 1, the maximum number of computers required in any one week would be slightly more than 2.4 million. From the campus-specific survey data, the number of computers currently in place and available for online testing at all campuses (not including "excess" computers at schools that reported more computers available than 91% of their enrolled testing students would need) is approximately 897,000, with 6% of campuses statewide reporting enough computers currently to meet this level of online testing.

Approximately 1.5 million additional computers would be required by the remaining 91% of schools in order to meet the capacity for this level of testing. Including additional cost estimates associated with infrastructure and personnel readiness, the total estimated cost for full transition to online under the current TAKS program structure would be almost $2 billion, with an additional ongoing operational cost estimate of $520 million (see Table 6.1—Overview of Estimated Costs for Options 1–4).

Benefits and Challenges of Option 1

Option 1 (full implementation under the current system) has the advantage of minimizing the total number of days required for statewide assessment, as well as reducing the instructional impact associated with the displacement of students from computer labs and other classes. Option 1 provides the least interruption to learning in these classes.

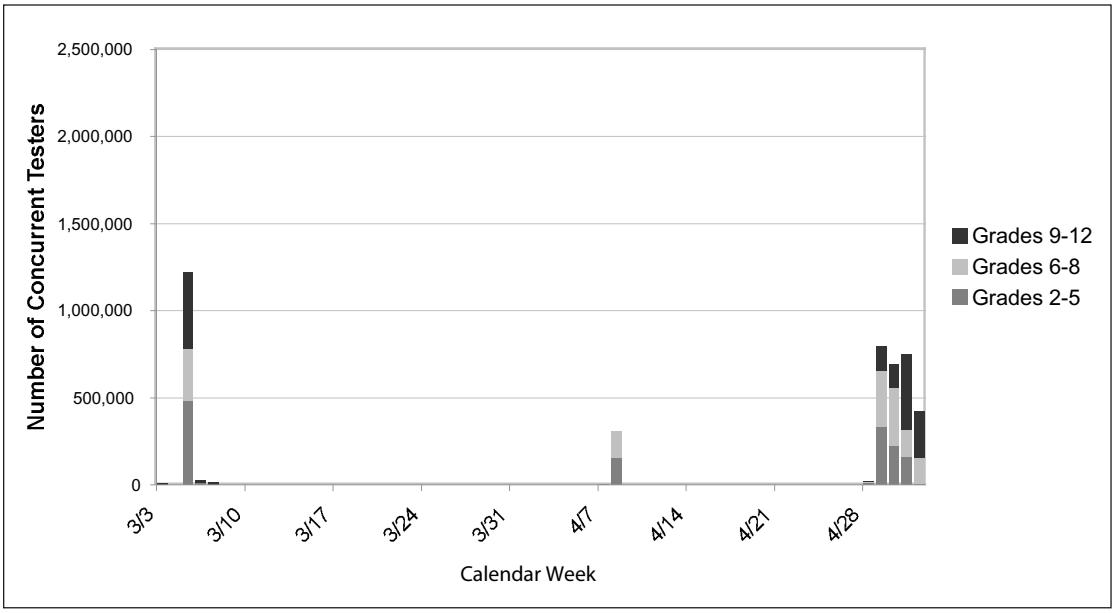
Option 1 also best preserves the current security measures that have been established for TAKS and maintains the current level of test item development and field-testing necessary to support the construction of new tests. Since all students (with the exception of absentees and students needing certain accommodations) will test on a single day, security concerns related to test exposure and student sharing of test information are minimized.

However, Option 1 is the most costly option, both in terms of the required costs for districts to attain readiness and costs of maintaining readiness for online testing in subsequent years. Additionally, with only one day allowed for testing, there is minimal ability for districts to respond to unplanned events such as Internet, power, or hardware outages. It should be noted, however, that the additional computers and other associated technology infrastructure could be made available for broader student use when not required for statewide assessments.

Option 2—Introducing Time Limits

Currently, students taking TAKS tests are given no time limit beyond the requirement to complete the test within one day. They may take as much time as they think is necessary to complete the test. This limits a school's ability to schedule more than one testing session per day. Retaining the existing structure of one test per student per day but introducing an up-to-three-hour time limit may allow schools to pre-schedule two test sessions in any one day, allowing a target student-to-computer testing ratio of 2:1. Figure 6.2 illustrates the effect this new target ratio would have on the total number of computers required statewide for capacity readiness.

Figure 6.2—Option 2: Online Testing Loads for TAKS with Timed Tests



Allowing schools to schedule two testing sessions per day reduces the maximum student load by half.

Introducing this one change to the program would cut in half the total number of computers required statewide to support online testing—from 2.4 million to 1.2 million. But Option 2 has an even larger effect on the estimated cost of transitioning from the current state of online testing to full-scale online testing. After removing the 9% of students who would receive accommodations that would require a paper administration or exemptions, the data from campus surveys show that approximately 33% of campuses statewide already have the required number of computers for their student population. As a result, the number of additional computers that would need to be purchased falls to slightly more than 486,000 (as compared with 1.5 million additional computers under Option 1). Including the additional cost estimates associated with infrastructure and personnel readiness, the total estimated cost for full transition to online testing under Option 2 would be $728 million, with additional ongoing operational cost estimates of $262 million (see Table 6.1—Overview of Estimated Costs for Options 1–4).

Texas has not previously used time limits in its assessment program; however, it is a practice that has been used in other high-stakes testing programs, such as those in New York and Florida. Time limits can be a successful strategy if they are set so that the length of a test session is equal to the amount of time required for all students who are likely to finish the test to have time to do so. Test session length may need to be longer for tests that require open ended/essay responses (for example, TAKS ELA). Students with disabilities who require additional testing time could be allowed additional time through the state's existing testing accommodation process.

Benefits and Challenges of Option 2

The primary advantage of Option 2 is that the student-to-computer ratio of 2:1 significantly reduces the number of computers required for capacity readiness and even more significantly reduces estimated transition costs. Estimated operational costs remain approximately half of that for Option 1.

By preserving the one-test-per-day-per-student structure, Option 2 retains the security advantages of the existing TAKS program. It also provides the same low level of class displacement as Option 1.

Option 2 retains many of the same challenges as Option 1, including the lack of additional time for districts to respond to unexpected power, Internet, or hardware outages. Additionally, the impact of moving to a policy of setting time limits on the state, districts, students, and parents should not be underestimated.

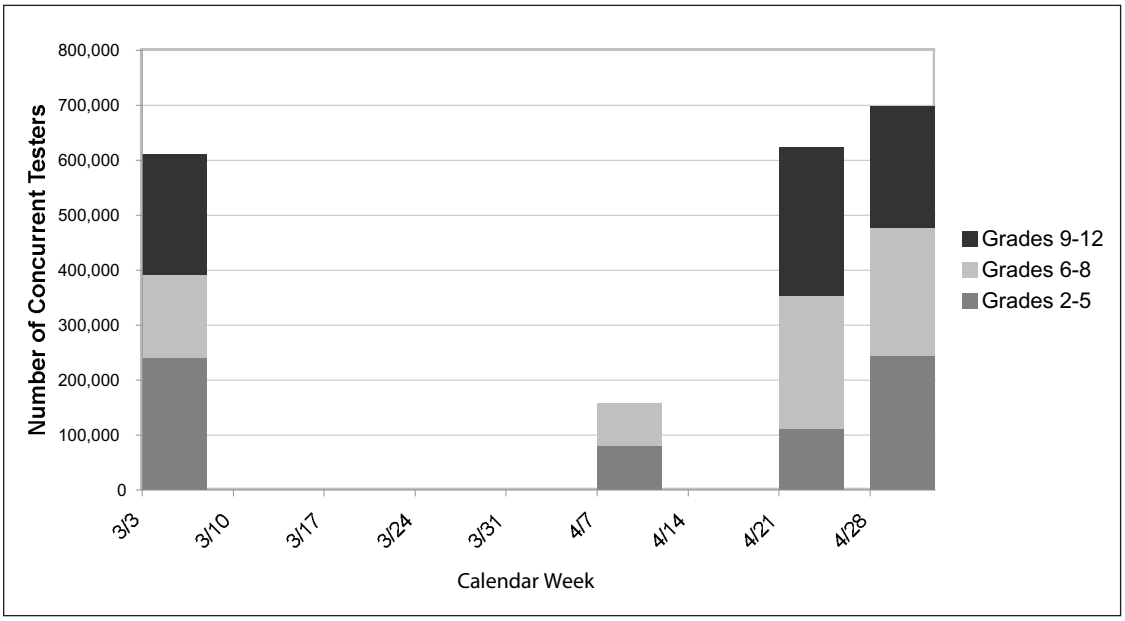
Option 3—Extending the Testing Window

One way to manage the constraints described above is to extend testing windows. Researchers were unable to find any statewide high-stakes assessment program currently employing online testing for which multiple-day windows were not in use, with the exception of the TAKS exit level retest. (The online version of the exit level retest is entirely voluntary; districts and campuses may elect to test none, some, or all of their exit level retest students online.)

Option 3, therefore, proposes a one-week testing window. It should be noted that the online version of the exit level TAKS retest currently in use in Texas employs only a single-day testing window per subject area test.

Figure 6.3 illustrates the potential testing loads that might result from transitioning to Option 3. In Option 3, each separate TAKS test, by grade and subject, would be given a four-day-plus-one scheduled window—effectively targeting a 4:1 student-to-computer ratio, but with an additional day allowed to provide schools with greater logistical flexibility as well as additional contingency time to respond to unplanned power, Internet, or other potential infrastructure interruptions.

Figure 6.3—Option 3: Online Testing Loads for TAKS with One-Week Windows



Introducing one-week testing windows to the TAKS program further reduces the testing load, while the week of maximum load statewide shifts to the last week of April.

As a result, the maximum load required to support Option 3 occurs during the last week of April, when all students in grades 3 through exit level would be taking at least one test. In order to accommodate this option, several tests that currently take place in the last week of April would need to be shifted one week earlier, including the grades 3 and 5 TAKS reading retests; the TAKS grades 4, 6, and 7 reading tests; the TAKS grade 8, 10, and 11 social studies tests; and the TAKS grade 10 and exit level science tests.

Increasing the testing window for each test but retaining the current full-day time limit for individual students would increase the target student-to-computer ratio to 4:1 for the week of maximum load. Under this option, the total number of computers required statewide would be approximately 700,000. Approximately 65% of Texas schools currently report having enough computers to meet readiness capacity for this option. The number of additional computers required for full statewide readiness capacity would be approximately 152,000. Including additional cost estimates associated with infrastructure and personnel readiness, the total estimated cost for full transition to online testing under Option 3 would be $310 million, with additional ongoing operational cost estimates of $151 million annually (see Table 6.1—Overview of Estimated Costs for Options 1–4).

A possible variation of Option 3 could be considered, wherein the testing at secondary grades, especially for grades 9–12, includes End-of-Course tests as a replacement for or addition to TAKS tests (some middle school students may

take both TAKS and EOC tests, depending on their course enrollments). This would result in a shift of the timing of the tests (EOC tests would be taken later in the year than the TAKS testing window), but the net impact on number of computers and costs required would not be significantly different from that considered here for Option 3.

Benefits and Challenges of Option 3

Option 3 significantly further reduces the estimated costs to districts by allowing a 4:1 student-to-computer ratio, which 65% of campuses currently report having enough computers to meet. Option 3 provides for contingency planning and accommodates unexpected events, such as schedule challenges related to student absences, or unexpected computer or Internet outages at the campus level.

Extending the window to one week per test will require that additional consideration be given to test security. Multiple test forms may be required, especially in the case of extended-response test items, such as student essays. These could be supported only at additional cost to the state for increased test item development. The subsequent requirement for field testing of these additional test items would present both additional costs and further strain for districts and campuses.

Case-study participants indicated that Option 3's longer testing windows would have the largest potential for displacing students from instructional time in computer labs and classrooms. Under Option 3, testing would require a minimum of three weeks of time, during which classes normally held in computer labs would have to find alternate instructional methods in order to continue.

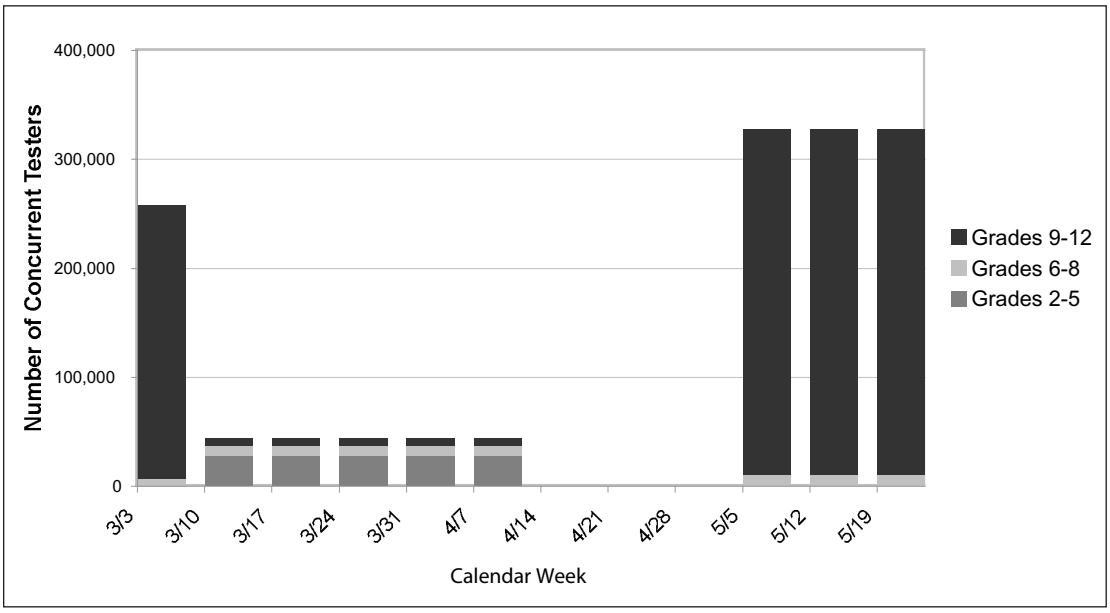
Option 4—Partial Implementation

Option 4 is a partial implementation model, wherein only secondary grades would move to mandatory online testing on a schedule concurrent with the transition from TAKS to the end-of-course (EOC) assessments required under Senate Bill 1031, currently scheduled for implementation in the 2011–2012 school year, beginning with the freshman class of 2012.

Under Option 4, the recommended testing window would be three weeks, plus one additional week earlier in the academic year for the English I, English II, and English III assessments. The recommended overall testing window takes into consideration two factors related to EOC testing: EOC tests are not grade-specific, and the total number of tests students take in a particular year is based on the students' schedules. No time limits are factored in Option 4. Figure 6.4

illustrates the schedule and maximum testing load that would be required for Option 4. Note that Figure 6.4 also shows where the current online Texas English Language Proficiency Assessment System (TELPAS) testing window would fall for districts. All four testing options have factored in the needs of TELPAS online testing, but only in Option 4 does this add any incremental costs, specifically for campuses with grades 2–8. Under Option 4, multiple test forms may be required, especially in the case of extended-response test items, such as student essays.

Figure 6.4—Option 4: Online Testing Loads for End-of-Course and TELPAS



In an EOC-based implementation of online testing, the maximum load on high schools occurs during May, and depending on campus LEP enrollments, the maximum load for elementary and middle schools may occur during the five-week TELPAS window in March and April.

Option 4's partial implementation strategy is cost effective for the state and its districts. The total number of computers required statewide to assess students under Option 4 is approximately 330,000. Survey data show that approximately 70% of all Texas schools with students in grades 2–12 report having enough computers to meet the required readiness capacity.

The number of additional computers required to reach full statewide readiness capacity would be slightly more than 101,000. Including the additional cost estimates associated with infrastructure and personnel readiness, the total estimated cost for full transition to online testing under Option 4 would be $197 million, with additional ongoing operational cost estimates of $81 million (see Table 6.1—Overview of Estimated Costs for Options 1–4).

Benefits and Challenges of Option 4

Option 4 would coincide with the transition of the statewide student assessment program at the secondary level from TAKS to EOC assessments. The transition schedule from TAKS to EOC will allow districts additional time to implement necessary upgrades for online testing by the 2011–2012 school year.

Option 4 supports districts in meeting the requirements of SB 1031, which requires testing to occur in each school district no earlier than the first full week in May, with the exception of English I, English II, and English III. SB 1031 also requires EOC scores to account for 15% of students' final course grades. Because campuses and districts will need to have scores in time for end-of-year grade and graduation calculations, scheduling the English I, English II, and English III EOC assessments earlier in the spring will allow time for open-ended and essay items on these tests to be scored. The nine remaining multiple-choice tests will be scheduled to conform with the requirements of SB 1031.

Option 4 provides districts with flexibility in terms of scheduling students who may need to take more than one EOC assessment. Districts will have the flexibility of scheduling tests within the one-week window for English I, English II, and English III and within the three-week window for the remaining EOC assessments.

The same challenges for class displacement and test security associated with Option 3 apply to the partial implementation plan of Option 4. Additionally, under Option 4, most students would have limited to no experience with online testing prior to their first online End-of-Course assessment.

Potential Operational Costs or Savings for TEA

In addition to the incremental costs to districts associated with achieving and maintaining readiness for online testing, there are potential costs and/or savings for TEA. For Options 1–4, potential savings might be realized with the reduction of the number of materials that are printed and distributed to districts. Additionally, a reduction in the number of secure materials that must processed, scanned, and scored may result in further savings. Note that in all scenarios these reductions in cost take into account a need to continue printing and distributing some paper materials, both for paper-based testing accommodations as well as for paper-based manuals, instructional supplements, and other testing materials used for training and preparation purposes.

In Options 3 and 4, savings to TEA may be offset by the costs for additional item development and field-testing, which may be necessary in order to account for the greater security concerns presented by extended the testing window to one week.

Side-by-Side Cost Considerations of Options 1–4

Table 6.1 shows the cost breakdown for each of the four options presented above. Cost estimates were derived according to a model constructed to account for campus-by-campus needs across the state, making use of data from the district- and campus-specific surveys conducted over the summer of 2008 and incorporating enrollment and demographic data available from TEA's *Snapshot 2007: School District Profiles*. The capacity and costing model further incorporates the following assumptions and estimations regarding district and statewide costs or savings associated with a statewide transition to online testing

- For the purposes of calculating the total number of computers required, the total number of testers is assumed to be 91% of students testing in each applicable grade; the other 9% would either be exempt or absent or would take paper-based forms of the test with accommodations (for example, large print or braille).
- All estimated cost scenarios have also taken into account any additional load requirements that may be placed on campuses from the online TELPAS administration.
- The estimated Total Cost of Ownership (TCO) of new computers is factored at $1,000 to include the cost of the new hardware itself as well as incremental costs per desktop associated with standard educational software licenses, with additional server or other network needs, and the direct labor associated with the installation of new hardware (from Data Research Corporation, "South Carolina Feasibility Study—Final Report," 2007). Minimum computer requirements for online testing can be found at http://www.etesttx.com/requirements.
- Cost estimates associated with increased bandwidth needs are factored at $1,000 per each group of 25 additional computers added to an existing school network (based on the cost to add an additional computer per classroom or computer lab to be used as a proctor caching station).
- Costs associated with building and infrastructure upgrades are factored at $2,000 per each group of 25 computers. (Actual costs may vary greatly by campus depending on a variety of factors, including the age of the school building.)
- Technical-support cost estimates are calculated at ten hours of support for every 25 computers (for example, one computer lab) at a rate of $30 per hour (based on cost information obtained from case-study districts).
- Cost estimates associated with staff and teacher training are factored at three hours per person, with one test administrator or teacher per every 30 students across an entire year. Ongoing operational training costs are estimated at 10% of the total training cost for the initial year.

- Computer replacement is assumed to be 20% each year, on a five-year cycle (John Baschab and Jon Piot, *The Executive's Guide to Information Technology*, 2007).
- Electricity usage cost estimates are calculated as an average of four hours per test multiplied by the total number of online testers across the state for a full year, at a rate of $0.12 per kilowatt-hour ("Average Retail Price of Electricity to Ultimate Customers by End-Use Sector, by State," July 2008).
- Estimated costs of continued training of test coordinators and administrators is assumed to be roughly equal to that of the training required for paper-based administrations.

Table 6.1—Overview of Estimated Costs for Options 1–4

	Option 1: Current Structure	Option 2: Timed Tests	Option 3: 1-Week Windows	Option 4: Partial (EOC)
Total Number of Computers Needed	2,440,000	1,220,000	700,000	372,000
Approximate Percent of Campuses Already Meeting Necessary Number	9%	33%	65%	70%
No. of Computers Currently Avail. at Campuses for Online Tests	897,398	733,592	547,970	263,255
No. of Additional Computers Needed to Meet Ratios	1,542,602	486,408	152,030	108,745
Estimated One-Time Costs to Districts				
Computer Purchase and Installation Cost Estimates	$1,542,602,000	$486,408,000	$152,030,000	$108,745,000
Increased Bandwidth Needs	$61,704,080	$19,456,320	$6,081,200	$4,349,800
Electrical & Network Wiring	$123,408,160	$38,912,640	$12,162,400	$8,699,600
Total Estimated One-Time Costs to Districts	**$1,727,714,240**	**$544,776,960**	**$170,273,600**	**$121,794,400**
Initial-Year Operational Cost Estimates to Districts				
Technical Support	$29,280,000	$14,640,000	$8,400,000	$4,464,000
Staff and Test Administrator Training	$20,697,512	$20,697,512	$20,697,512	$17,099,427
Computer Refresh Cost Estimates (Assumes 20% Refresh Rate)	$179,479,600	$146,718,400	$109,594,000	$52,651,800
Estimated Additional Electricity Costs	$993,481	$993,481	$993,481	$820,772
Total Estimated Operational Costs—Year 1	**$230,450,593**	**$183,049,393**	**$139,684,993**	**$75,035,199**
Total Year 1 Estimated Cost to Districts	**$1,958,164,833**	**$727,826,353**	**$309,958,593**	**$196,829,599**
Estimated Ongoing Operational Costs to Districts				
Technical Support	$29,280,000	$14,640,000	$8,400,000	$4,464,000
Staff and Test Administrator Training	$2,069,751	$2,069,751	$2,069,751	$1,709,943
Computer Refresh Cost Estimates (Assumes 20% Refresh Rate)	$488,000,000	$244,000,000	$140,000,000	$74,400,000
Estimated Additional Electricity Costs	$993,481	$993,481	$993,481	$820,772
Total Operational Costs—Ongoing	**$520,343,232**	**$261,703,232**	**$151,463,232**	**$81,394,715**
Potential Operational Costs or Savings to TEA				
Estimated Reduction in Administration & Materials Costs	($2,120,998)	($2,120,998)	($2,120,998)	($699,929)
Estimated Reduction in Test Scoring & Reporting Costs	($2,819,200)	($2,819,200)	($2,819,200)	($930,336)
Additional Item Development and Field-Testing to Support Multiple Forms	N/A	N/A	$8,340,000	$9,975,000
Total Potential Operational Costs or Savings to TEA	**($4,940,198)**	**($4,940,198)**	**$3,399,802**	**$8,344,735**
Current State Technology Allotment (2008–09)	$263,000,000	$263,000,000	$263,000,000	$263,000,000

Summary and Recommendations

Figure 6.5 summarizes the characteristics as well as benefits and challenges to the four options presented here.

Figure 6.5—Summary and Recommendations

	Option 1: Current Structure	Option 2: Timed Tests	Option 3: 1-Week Windows	Option 4: Partial (EOC)
Key Characteristics				
	• Full implementation of online testing at all grades, using current TAKS program structure	• Full implementation of online testing at all grades, using current TAKS structure but with up-to-3-hour time limits placed on tests, allowing for schools to schedule 2 test sessions per day	• Full implementation of online testing at all grades, using current TAKS structure (or current TAKS for grades 3–8 and EOC for secondary course enrollments) with 1-week scheduled testing windows per test	• Partial implementation of nonvoluntary high-stakes online testing for students taking EOC exams only • 3-week testing window
Summary of Benefits				
	• Minimal change to existing TAKS assessment program • Minimal effect on instructional displacement of students • Minimal security issues (all students test at once)	• Reduction in estimated costs and number of computers required • Minimal effect on instructional displacement of students • Minimal security issues (all students test same day)	• Extended window allows greater flexibility for campus use of computers and contingency allowed for unplanned hardware, power, or connectivity failures	• Significant reduction in estimated costs and number of computers required • Extended window allows greater flexibility for campus use of computers and contingency allowed for unplanned hardware, power, or connectivity failures • Coincides with the planned transition of the secondary-level TAKS student assessment program to EOC assessment
Summary of Challenges				
	• Most expensive option, both startup and operational costs • Minimal capacity for unplanned hardware, power, or connectivity failures	• Estimated costs and number of computers required remain high • Minimal capacity for unplanned power or connectivity failures • Policy change and potential effect on students from time limits placed on tests	• Significant potential for instructional displacement; campuses may lose up to four weeks of instructional time from computer labs and other computer-based classes	• Potential for instructional displacement impact • Most students would have limited to no experience with online testing before high school

Based on a consideration of all the factors involved, the agency recognizes the practicality of Option 4 and recommends it for transition of the state's assessment program from a paper-based to a computer-based online assessment program. The recommended timeline for this implementation would follow the transition and implementation of the end-of-course assessment program. Additionally, it would allow four full years for districts to adequately prepare their computer capacity, their infrastructure and personnel, and all other necessary aspects of district-internal assessment capacity and infrastructure.

APPENDIX 1. DESCRIPTIONS OF STATE ASSESSMENT PROGRAMS CURRENTLY ONLINE

This component of the 2008 Texas Evaluation of Districts' Readiness for Online Testing describes the use of online assessments in other states. Between August and September 2008, researchers conducted a national survey of states, as well as the District of Columbia and Puerto Rico, to develop an up-to-date picture of how online assessments are used to measure student performance on state assessments.

Methodology

Researchers gathered information from other states by contacting personnel in each state's department of education (DOE). In some cases, questions were submitted via telephone or through a state's DOE website contact form, and in other cases, questions were e-mailed directly to assessment administrators listed on DOE websites. Follow-up contacts were made to states that reported using some form of online testing. Additionally, information was collected from each state's DOE website assessments section and from other sources available online. In states where Pearson is the current vendor for online testing programs, the questions were generally answered by the Pearson program manager for that state. Information about each state's online testing program was requested, including length of testing window, testing vendor, minimum technical specifications required, and grade levels tested. The full list of variables examined is included in the Comprehensive Matrix of States and Online Testing table.

Summary of findings

The research showed that 22 states offer some level of statewide online testing for grades 3–11. However, only three states—Wyoming, Idaho, and Oregon—have made online tests mandatory for most students. Of the states that currently administer online assessments, none reported using a timed test. Significantly, no states reported having a testing window of less than one week. Most states that have online assessments use a fixed form (i.e, questions on the assessment in the same sequence for every student) for state-mandated assessments; only Oklahoma reported using questions for online testing that were not sequenced the same way for each student.

Trends and notable responses from states that use online testing

- ***Kentucky*** intends to move to online assessment as quickly as feasible. Kentucky's Commonwealth Accountability Testing System (CATS), a summative, criterion- referenced test taken by all Kentucky students and composed of open-response and multiple-choice questions, is currently offered online only to special population students who use technology in everyday instruction. However, in fall 2008, Kentucky will pilot test their statewide assessment, administering the CATS On-Demand Writing Assessment online voluntarily to general population grade 12 students.
- ***Maine*** has provided a voluntary online state assessment only at grade 8 for the past five years. This practice will be temporarily suspended during the 2008–2009 school year. However, online testing will eventually be required for all students in grades 7 and 8.
- ***Idaho*** administers the Idaho Standards Achievement Tests (ISAT) online in mathematics, reading, and language usage to students in grades 3–8 and 10. Ninety-nine percent of Idaho students take the test online. The remaining one percent of students receive accommodated versions, including large-print and braille assessments, in paper and pencil. Although in the past, Idaho has offered adaptive variations of an NCLB-based test for grades 2–10, those variations are no longer offered.
- Information about each state, as well as Puerto Rico and the District of Columbia, is provided in the following Comprehensive Matrix of States and Online Testing table. The matrix focuses on states that engage in online assessments of statewide mandatory testing but also contains information about states that do not participate in online testing.

Comprehensive Matrix of States and Online Testing

States that offer online testing

State	Offers Online Testing (Y/N)	Mandatory or Voluntary	Tests, Subjects, and Grade Level	Constructed Response or Extended Response	Length(s) of Testing Window(s)	Report Turnaround Timeframe(s)	First Year Began Online Testing	Approx. number of tests delivered online 2007–2008	Total state tests taken online (approx. by percentage)	
Arizona	Yes	Mandatory	Arizona's Instrument to Measure Standards-Alternate (AIMS-A)	No	1 week	1–2 weeks	2006	100,000	10%	
Georgia	Yes	Voluntary	End-of-Course: Algebra I, geometry, U.S. History, economics, 9th grade literature, American literature, physical science, biology	No	6 weeks for main administrations. 1-week window once per month for the other months.	3–5 days	2003	200,000	25%	
Idaho	Yes	Mandatory	Idaho Standards Achievement Tests (ISAT); grades 3–8 and 10 in mathematics, reading, and language usage	No	1 week	1–5 days	2005	250,000	99%	
Indiana	Yes	Voluntary	Algebra I and grade 11 English End-of-Course assessments and grade 10 exit level	No	1 week	1 week	2006	200,000	20%	
Kansas	Yes	Voluntary	The decision is up to each school and/or school district; however, many opt to take the state assessments on computer.	No	2 weeks	2 weeks	2004	200,000	40%	

*Innovative items: Computerized test items that require a performance or interaction.

†Automated Essay Scoring: The use of complex algorithms and computer programs to "read" and assess written documents such as essays.

††Formative Assessment: An assessment devised to facilitate student learning.

	Online Testing Vendor(s)	Innovative Items Used (Y/N)?*	Use of Automated Essay Scoring†	Formative Assessments Online?††	Minimum Platform Specs	Forms are Fixed or Scrambled	Time limited or unlimited	Notes
	CTB McGraw-Hill (past); AIMS-A is done entirely in-house by the state.	N	N	N	Memory: 128MB Processor: 200 MHz or higher. Windows 2000, XP, 2003, Vista Mac OS X	Fixed	Unlimited	The AIMS-Alternate (AIMS-A) is a test for a small percentage of Arizona's special education populations. It is administered in two parts: teacher-input and student-input, both are completed online except in rare instances.
	Pearson	N	N	N	Memory: 128MB Processor: 200 MHz or higher. Windows 2000, XP, 2003, Vista Mac OS X	Fixed	Unlimited	Offers online versions of the end-of-course tests. The CRCT tests are being piloted online, and released items are available in an online tool.
	Data Recognition Corporation in partnership with computer Assisted Learning (CAL)	N	N	N	Memory: 64MB minimum, 128MB recommended. Monitor resolution 800 x 600 pixels, minimum 8 MB Video Card adaptor	Fixed	Unlimited	
	QuestStar, Quality Core ACT, and ADP	N	N	N	Memory: 128MB Processor: 200 MHz or higher. Windows 2000, XP, 2003, Vista Mac OS X	Fixed	Unlimited	
	Center for Educational Testing and Evaluation at the University of Kansas	N	N	N	Memory: 128MB Processor: 200 MHz or higher. Windows 2000, XP, Vista Mac OS X	Fixed	Unlimited	

States that offer online testing

State	Offers Online Testing (Y/N)	Mandatory or Voluntary	Tests, Subjects, and Grade Level	Constructed Response or Extended Response	Length(s) of Testing Window(s)	Report Turnaround Timeframe(s)	First Year Began Online Testing	Approx. number of tests delivered online 2007–2008	Total state tests taken online (approx. by percentage)	
Kentucky	Yes	Voluntary	Commonwealth Accountability Testing System (CATS) for special populations; Fall 2008: CATS grade 12 available on demand	Extended and multiple-choice questions	3 weeks	3 weeks	2006	75,000	15%	
Louisiana	Yes	Voluntary	End-of-Course; Practice Assessment/Strengthen Skills (PASS) practice tests	No	2 weeks	2 weeks	2006	100,000	10%	
Maine	Yes	Voluntary	Grade 8 only	No	2 weeks	5 days	2003	125,000	50%	
Maryland	Yes	Voluntary	3–8 Modified Maryland School Assessment (MSA), reading/mathematics; grades 3, 5, and 8 science (optional by school/district)	No	2 weeks	9 weeks after testing	2008	200,000	30%	
Minnesota	Yes	Voluntary	Mathematics test for English Language Learners (ELL) Minnesota Comprehensive Assessments-Series II in science. For 2008–2009, Minnesota plans to begin offering graduation exam retests.	No	3 weeks	2 weeks	2007	250,000	50%	
Mississippi	Yes	Voluntary	Mississippi Functional Literacy Examination (FLE) make-up tests	No	1 week	2 weeks	2004	100,000	20%	

	Online Testing Vendor(s)	Innovative Items Used (Y/N)?	Use of Automated Essay Scoring	Formative Assessments Online?	Minimum Platform Specs	Forms are Fixed or Scrambled	Time limited or unlimited	Notes
	Measured Progress	N	N	N	Windows 2000 and above Mac OS X and above	Fixed	Unlimited	
	Pacific Metrics	N	N	Y	Memory: 64MB minimum, 128MB recommended Processor: 200 MHz or higher Windows NT, ME, 2000, XP, 2003, Vista Mac OS X	Fixed	Unlimited	
	Measured Progress	N	N	N	Windows 2000 and above. Mac OS X and above.	Fixed	Unlimited	This will be suspended in 2008–2009, but will eventually be required in grades 7 and 8.
	Pearson	N	N	N	Windows 2000 and above Mac OS 9 and above	Fixed	Unlimited	
	Pearson	N	N	N	Memory: 128MB Processor: 200 MHz or higher. Windows 2000, XP, 2003, Vista Mac OS X	Fixed	Unlimited	
	Internet Testing Systems in Maryland (Pearson)	N	N	N	Memory: 64MB minimum, 128MB recommended Processor: 200 MHz or higher. Windows NT, ME, 2000, XP, 2003, Vista Mac OS X	Fixed	Unlimited	

States that offer online testing

State	Offers Online Testing (Y/N)	Mandatory or Voluntary	Tests, Subjects, and Grade Level	Constructed Response or Extended Response	Length(s) of Testing Window(s)	Report Turnaround Timeframe(s)	First Year Began Online Testing	Approx. number of tests delivered online 2007–2008	Total state tests taken online (approx. by percentage)	
Oklahoma	Yes	Voluntary	Grade 7 geography; grade 8 reading and mathematics; grades 9–12 Algebra I, Algebra II, geometry, English II, English III, biology I, and U.S. History.	No	30 days	2 weeks	2007–2008	113,988	50%–100%	
Oregon	Yes	Mandatory	All Tests,paper-and-pencil tests only offered as accommodations	No	10 months	Immediately after test completed	2001	500,000	95%	
South Carolina	Yes	Voluntary	End-of-Course tests online, (optional) at the student level	No	2 weeks	2 weeks	2005	100,000	20%	

	Online Testing Vendor(s)	Innovative Items Used (Y/N)?	Use of Automated Essay Scoring	Formative Assessments Online?	Minimum Platform Specs	Forms are Fixed or Scrambled	Time limited or unlimited	Notes
	Pearson	N	N	N	Memory: 64MB minimum, 128MB recommended Processor: 200 MHz or higher. Windows NT, ME, 2000, XP, 2003, Vista Mac OS X	Scrambled	Unlimited	
	American Institutes for Research, in Washington DC	N	N	N	Windows 98 and above Internet Explorer 5.5 or higher 184 Kb disk space Mac OS 10.3 and above Firefox or Safari web browser 15Kb disk space Linux K12LTSP 5.0 or 6.0 Firefox 1.5 or 2.0 web browser 4Kb disk space 1024x 768 screen resolution	Fixed	Unlimited	Students and Teachers see immediate report of performance. Students have up to 3 chances during the testing window to pass the test.
	DRC	N	N	N	Windows 2000 and above. Mac OS X and above	Fixed	Unlimited	

States that offer online testing

State	Offers Online Testing (Y/N)	Mandatory or Voluntary	Tests, Subjects, and Grade Level	Constructed Response or Extended Response	Length(s) of Testing Window(s)	Report Turnaround Timeframe(s)	First Year Began Online Testing	Approx. number of tests delivered online 2007–2008	Total state tests taken online (approx. by percentage)	
Texas	Yes	Voluntary	English language arts, mathematics, science, social studies at exit level through the Texas Assessment of Knowledge and Skills (TAKS); reading at grades 2–12 through the Texas English Language Proficiency Assessment System (TELPAS); and chemistry, U.S. History, Algebra I, geometry, and biology at grades 9–12 through the End-of-Course assessment.	TAKS (only)—three open-ended items and a flash-based essay	TAKS: 1 day per subject; EOC: 3 weeks all subjects; TELPAS: 1 month, all grades	TAKS & TELPAS results merged and reported with paper; EOC: 24 hours	2002	TAKS tests delivered: 31,248; EOC: 205,100; TELPAS: 318,954	TAKS: 18%; EOC: 100%; TELPAS: 46% (100% in 2009)	
Utah	Yes	Voluntary	All tests, grades 3–12	Multiple-choice tests for online assessments	3 weeks	1 week	2005	150,000	30%	
Virginia	Yes	Voluntary - Divisions must be capable of administering online tests but are not required to do so.	Reading (grades 3–8 and EOC); mathematics (grades 3–8, Algebra 1, and EOC: Geometry, Algebra 2); science (grades 3, 5, 8, and EOC: earth science, biology, chemistry); history (grade 3, VA studies, U.S. History 1 & 2, Civics & Econ, EOC: VA & U.S. History, World History 1 & 2, World Geography)	No	Fall 2008 (11/24/08–2/27/09) Spring 2009 (4/13/09–6/26/09) Summer 2009 (6/15/09–9/25/09)	1 week	Fall 2001	Summer 07: 24,896 Fall 07: 175,309 Spring 08: 1,446,870	42%	

	Online Testing Vendor(s)	Innovative Items Used (Y/N)?	Use of Automated Essay Scoring	Formative Assessments Online?	Minimum Platform Specs	Forms are Fixed or Scrambled	Time limited or unlimited	Notes
	Pearson	N	N	N	Memory: 512MB Processor: Pentium III 733MhZ minimum, 1.3GHz recommended Windows XP and above Mac OS X 10.4 and above Internet Explorer 6.0 or higher (Windows) Firefox 2.0 or higher (Windows or MAC) Safari 2.0 or higher—2.0.4 required for TAKS-ALT (MAC) Adobe Acrobat Reader 7.0 or higher Adobe Flash Player 9.0 or higher Sun JAVA virtual machine (TestNav only) Screen Resolution: 800x600 or higher High speed internet connection	TAKS= fixed; EOC and TEL-PAS= scrambled	Unlimited	
	Measured Progress	N	Yes	N	Memory: 128MB Processor: 200 MHz or higher. Windows 2000, XP, 2003, Vista Mac OS X or higher	Fixed	Unlimited	
	Pearson	N	N	N	Memory: 128MB minimum, 256 recommended Processor: Pentium III (Windows), Power PC, G3, G4 (MAC) 500 MB Hard Drive Mouse/pointing device Headphones/speakers Monitor Resolution: 800x600 minimum, 1024x768 recommended Java Release 1.4.2 or higher Adobe Flash Player 9 Proctor Caching Server recommended	Fixed	Unlimited	Piloting for 2% (FT in spring 2009 and Operational spring 2010). Virginia Standards of Learning tests are available online with several exceptions. English and mathematics, grades 3, 4, and 5, are not available online; nor are some of the state's older cumulative tests (mathematics and reading cumulative, grade 8). They also offer read-aloud and audio versions of the test online. Braille and large-print versions are not available online.

States that offer online testing

State	Offers Online Testing (Y/N)	Mandatory or Voluntary	Tests, Subjects, and Grade Level	Constructed Response or Extended Response	Length(s) of Testing Window(s)	Report Turnaround Timeframe(s)	First Year Began Online Testing	Approx. number of tests delivered online 2007–2008	Total state tests taken online (approx. by percentage)	
West Virginia	Yes	Voluntary	West Virginia Educational Standards Test (WESTEST) 2 writing assessment; grade 8 West Virginia History	No	2 weeks	3 weeks	2008	40,000	15%	
Wyoming	Yes	Mandatory	Reading, mathematics, science at all grade levels; grade 11 reading and writing	Multiple-choice online; constructed response on paper; grade 11 ELA CR went online in Spring 2008; grades 6, 7, and 8 ELA moving to online.	5 weeks	2–3 weeks	Started with Harcourt in Spring 2006	6000 students per grade.	Required with the exception of accommodations for large print and braille.	

	Online Testing Vendor(s)	Innovative Items Used (Y/N)?	Use of Automated Essay Scoring	Formative Assessments Online?	Minimum Platform Specs	Forms are Fixed or Scrambled	Time limited or unlimited	Notes
	CTB McGraw-Hill	N	N	N	Windows 2000 and above Mac OS X and above	Fixed	Unlimited	
	Pearson and Internet Testing Systems in Maryland. Use testing vendor for writing module. Vendor is Bookette and the product is Skillwriter.	N	No, n-count is too small.	N	Memory: 128MB Processor: 200 MHz or higher Windows 2000, XP, 2003, Vista Mac OS X	Core items are in a fixed location with embedded FT items.	Unlimited	Reading, mathematics, and science items that required a written response in grades 3–8, as well as the writing portion of the test, were administered in a booklet form.

States that do NOT offer online testing

State	Offers Online Testing (Y/N)	Tests, Subjects, and Grade Level	
Alabama	No	One voluntary assessment that is an interim or formative style assessment.	
Alaska	No	All on paper at this time	
Arkansas	No		
California	No	The statewide assessments used for state and/or federal accountability purposes are not administered online. California does not monitor how local school districts administer benchmark or formative assessments.	
Colorado	No		
Delaware	No	Currently, Delaware's statewide student assessment is paper only; there is no online version. The goal is to move to online assessment within the next 2–3 years.	
District of Columbia	No		
Florida	No	Currently, none of Florida regular assessments are offered online. Florida offers their summer and fall retake exam online, but the numbers are small (< 100,000/yr).	
Hawaii	No	Currently, the Hawaii Department of Education does not provide any assessments online.	
Illinois	No	No	
Iowa	No	All on paper at this time	
Massachusetts	No	Massachusetts currently does not offer any student assessments in an online format.	
Michigan	No		
Missouri	No		
Montana	No	All paper	
Nebraska	No		
Nevada	No	All state assessments in Nevada are paper at this time.	
New Hampshire	No		
New Jersey	No		
New Mexico	No	All statewide student assessments are currently paper and pencil.	
New York	No	At this time, all of the New York State Assessment are done on paper; none are done online.	
Ohio	No	All of the Ohio student assessment tests are on paper.	
Pennsylvania	No		
Puerto Rico	No		
Rhode Island	No		
South Dakota	No		
Tennessee	No	At this time, no assessments online	
Vermont	No		
Washington	No		
Wisconsin	No	Wisconsin's State Assessments are paper-and-pencil tests.	

	Notes
	Delaware's statewide student assessment is paper only; there is no online version. The goal is to move to online assessment within the next 2–3 years.
	None of Florida assessments are offered online.
	All of the state assessments produced for student accountability are printed documents.
	The Michigan Department of Education does not currently offer any online student assessment. There is a fair amount of local educational agency activity in online assessment.
	Through the Missouri Virtual Classroom (MoVIP) program, students may take both their coursework and their tests online; however there is no online option for statewide assessments.
	All NECAP assessments are done on paper, with the exception of the grade 2 reading assessment done on cassettes.

APPENDIX 2. COMPARABILITY OF SCORES FROM COMPUTER-BASED AND PAPER-BASED TESTS

What is Comparability?

In the context of computer-based testing, comparability refers to the equivalence of scores based on computerized and paper formats of a given test. With the increasing availability and usage of technology in the classroom and the increases in the amount of standardized testing for students in K–12, many state education departments are considering the viability and value of computer-based testing. Computerized tests eliminate the need to print, mail, and track thousands (or millions) of paper test booklets and associated test materials. They can also be scored efficiently, possibly allowing students to receive feedback more quickly.

However, not all districts and campuses in a state typically have the infrastructure and equipment to test every student by computer. For this reason, paper and computer-based versions of the same tests usually need to be offered during the same test administration. Although a computer-based test and paper test may contain the exact same test questions, those questions may actually appear more difficult to students in one mode compared to the other. Thus, an important question in this situation is: are the tests given in the two modes the "same" test? Should scores obtained from the paper and computer-based tests be treated the same? That is, are the scores *comparable*? Professional testing standards and federal accountability both require evidence showing comparability of test scores obtained in the two administration modes. Addressing comparability is therefore vital to the fairness of the assessment and legal defensibility of the testing program.

The Need for Comparability Studies: Examples

To illustrate how the same test question can appear to be of different difficulty across paper and computer versions of the test, consider the following two mathematics questions from the 2006 administration[1] of the Texas Assessment of Knowledge and Skills (TAKS).

The first question was item #15 on the TAKS grade 8 mathematics test given in April 2006. Screenshots of the paper- and computer-based versions of this item are shown in figures 1 and 2, respectively.

15 Ivan's car uses gasoline at an average rate of 20 miles per gallon. He must drive from City 1 to City 2. Use the ruler on the Mathematics Chart to measure the distance from City 1 to City 2 on the map below in inches.

How many gallons of gasoline will Ivan's car use at this rate when he drives from City 1 to City 2?

A 10 gal
B 40 gal
C 200 gal
D 800 gal

Figure 1: Paper version of the item #15 on the TAKS grade 8 mathematics test in April 2006

[1] All tests given during the 2006 TAKS administrations were released tests. Thus, the example items in this report are available to the public and may be found at the TEA web site (http://www.tea.state.tx.us/student.assessment/resources/release/taks/index.html).

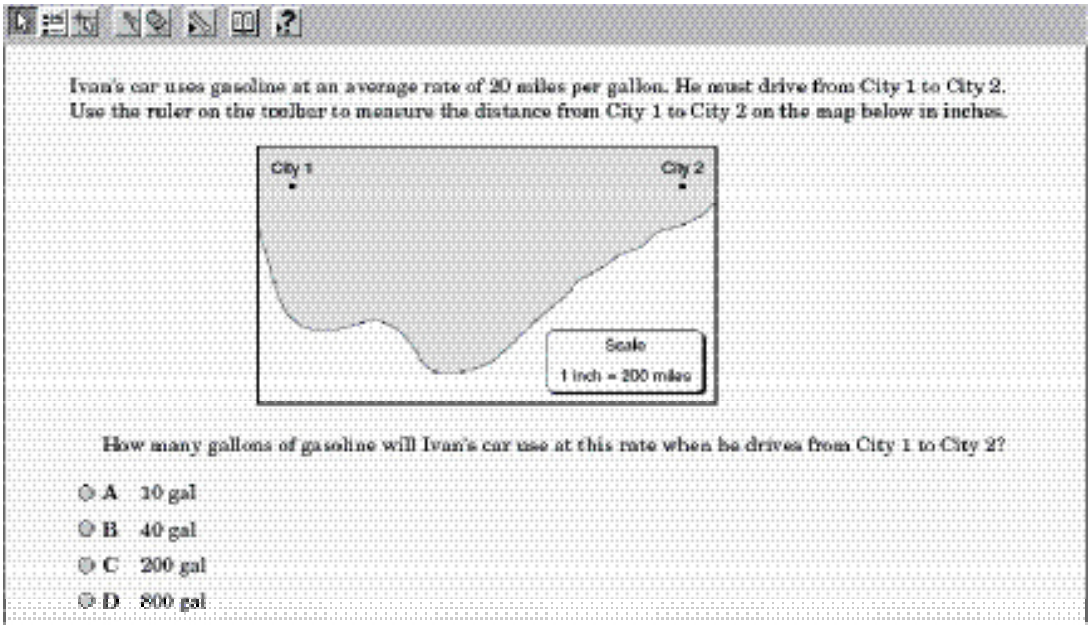


Figure 2: Computer version of the item #15 on the TAKS grade 8 mathematics test in April 2006

To answer this question correctly, students were required to use a ruler to measure the distance between City 1 and City 2. Students taking the test on paper were provided with physical rulers, which they could use to directly measure the distance in their paper booklets. Students taking the computer-based test, on the other hand, needed to use the online ruler tool[2]. Because many students had little or no experience using an online ruler, activating and manipulating this tool could have been difficult for students taking the computer-based version. Consequently, this question was found to be significantly more difficult on the computer-based test than it was on the paper test.

The second question was item #1 on the same TAKS grade 8 mathematics test. Screenshots of the paper- and computer-based versions of the item are shown in figures 3 and 4, respectively.

[2] The actual size of the graph in the computer version of the test (Figure 2) may differ from that in the paper version (Figure 1) due to monitor size, screen resolution, and other factors specific to the computer mode. The online ruler tool, however, is scaled to match the size of the graph so that the measured distance is always the same in the two modes.

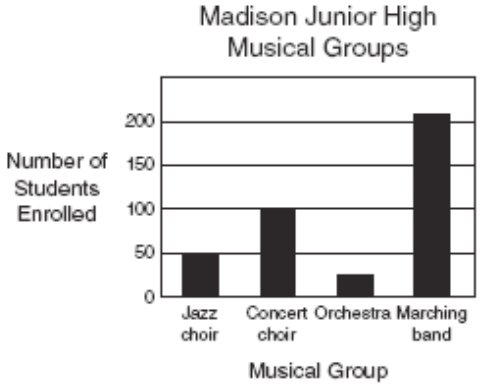
1 The table below shows the number of students in each grade at Madison Junior High who are enrolled in various musical groups.

Madison Junior High
Musical Groups

Musical Group	7th Grade	8th Grade	9th Grade
Jazz choir	12	12	10
Concert choir	32	46	20
Orchestra	16	20	24
Marching band	60	62	86

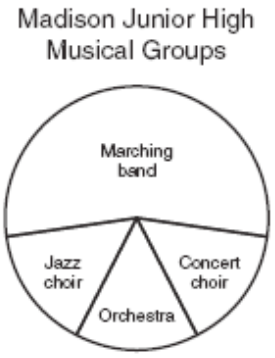
Which graph best represents the data in the table?

A



C

B



D

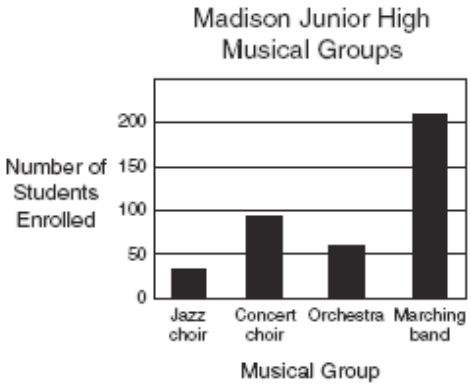


Figure 3: Paper version of the item #1 on the TAKS grade 8 mathematics test in April 2006

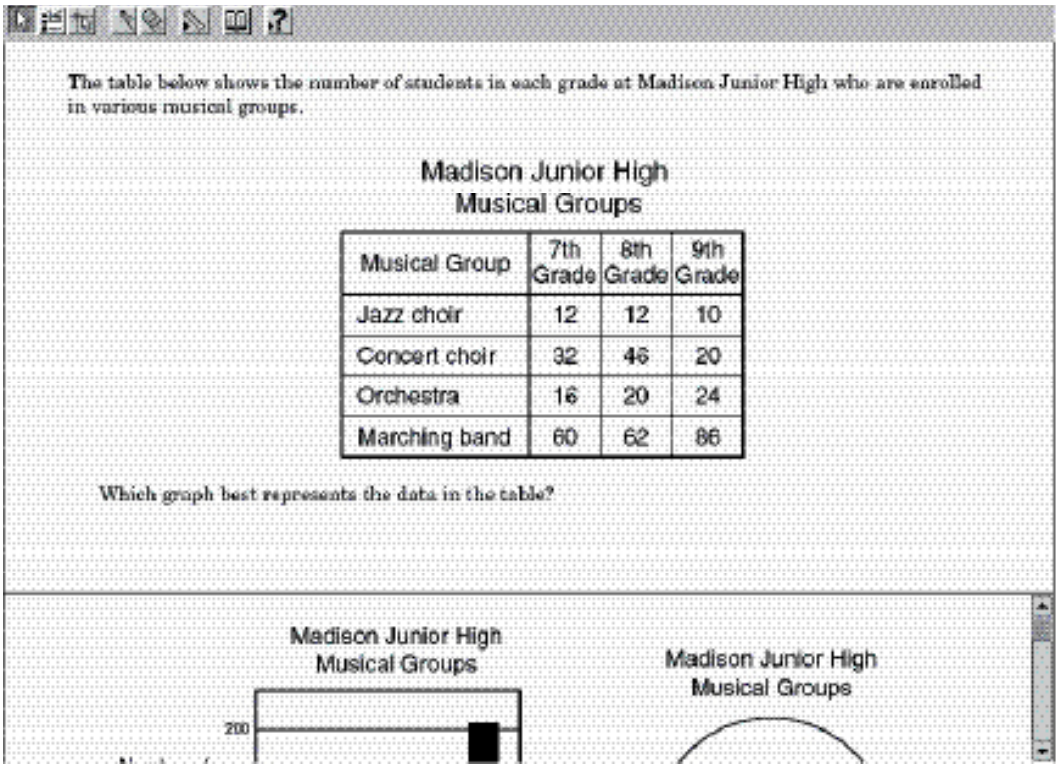


Figure 4: Computer version of the item #1 on the TAKS grade 8 mathematics test in April 2006

As shown in figure 3, students taking this question on paper were able to see the entire question on a single page in their booklet. However, as one can see in figure 4, students taking the computer version were unable see all four answer choices at once. They needed to use the scrollbar on the side of the testing interface to scroll through the choices and make their selection. This likely led to a difference in how students in the two modes experienced the question. Student-performance data showed that this question was significantly harder for students taking the test on the computer than for those taking the paper version of the test.

Both examples demonstrate how, even with identical content, test questions can perform differently in the computer mode than they do in the paper mode, leading to potentially significant differences in test difficulty across the two modes. This is often referred to as a *mode effect*. Comparability studies are needed to detect mode effects. If a mode effect is found, it is desirable to understand, as much as possible, the reasons for this effect so that in future administrations changes can be made to mitigate it. Many comparability studies have found, for example, that questions requiring scrolling in the computer mode typically yield a mode effect in favor of the paper mode (as illustrated in the second example item above). Such findings have led testing programs to redesign their computer-based testing interface to minimize or eliminate scrolling. The goal of comparability studies is to determine if the computer and paper modes

are generally equivalent. That is, does the mode of test administration impact student performance on the test?

What to Do When a Mode Effect Exists

Each testing program needs to decide what do with the findings of comparability studies. Clearly, if no evidence of a mode effect is found, then the test scores can be confirmed as comparable across testing modes, and no further action is necessary. However, if mode effects are found in an operational test administration, an adjustment would be needed to account for the difference in difficulties between the two modes. This is typically done prior to reporting scores to students and is necessary for the fairness and defensibility of the testing program.

In many state testing programs, if a mode effect is found, the table converting raw scores (the number of questions answered correctly) to reported scale scores for the test is adjusted to account for the mode effect. This yields different scale scores associated with each raw score for each mode. In practice, this may result in a difference between the raw score a student would need to achieve the various performance levels (e.g. "Met the Standard" or "Commended Performance") on the computer-based test and the raw score needed on the paper test.

Innovative Items

The use of *innovative items* that leverage the ability for test-takers to interact dynamically with the content of computer-based test questions has generated much interest among test developers. For example, a traditional science question may assess a student's knowledge of scientific measurement by providing a static graph of a scale with a certain amount of weight on it and asking the student to read the scale measurement. An innovative science question, on the other hand, could ask students to carry out the steps of measuring the weight of an object using a fully functional virtual scale, simulating what students do in their lab experiments.

Texas has explored the use of innovative science questions by developing and field-testing them with small samples of students. Students reported that they found the innovative questions to be more engaging than standard types of questions. However, the need to evaluate comparability across testing modes has slowed the development of innovative items because it is difficult, if not impossible, to include such questions on a computer-based test that are equivalent to innovative items on a paper test. Thus, as long as tests are administered in both computer and paper modes, the inclusion of innovative items will continue to be challenging.

Conclusion

In conclusion, as Texas moves toward a future which includes computer-based testing, Texas policymakers should not only carefully consider the issues of technology infrastructure in districts and campuses, but also support the continuing use of comparability studies to ensure the fairness and legal defensibility of the Texas assessment program.

APPENDIX 3. ONLINE READINESS SURVEY PARTICIPATION LEVELS

The Texas Education Agency invited 1,239 districts/charter schools to participate in its survey to assess districts' readiness for online testing. Each district, or charter school, was provided a survey at the district-level and one survey per campus at the campus-level. The survey instrument, which was Web-based, tracked statistics on district/charter school participation levels.

Participation levels by Education Service Center (ESC) regions can be seen in figure 3.1.

There were 17 districts/charter schools, as listed in table 3.1, that did not log in to the survey. Another 10 districts/charter schools did not complete a single survey, as shown in table 3.2.

The vast majority of districts/charter schools (1,212) participated in the survey, as listed in table 3.3.

Figure 3.1 Survey Completion Status, Statewide and by ESC Region

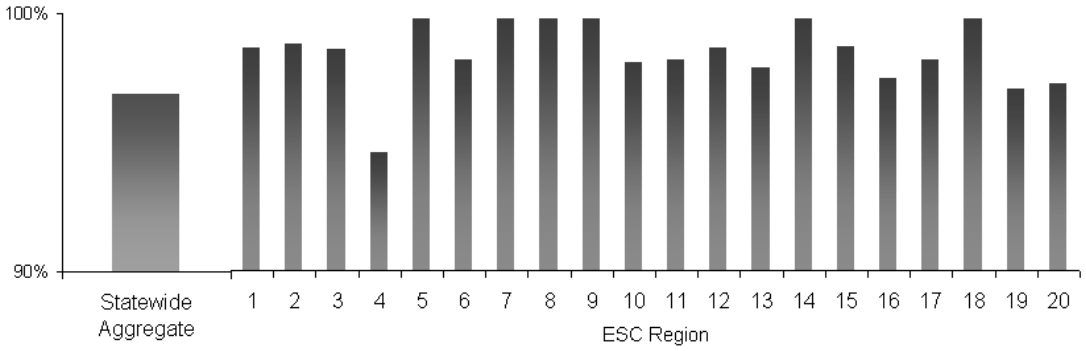


Table 3.1 Districts/Charter Schools that Did Not Log In to the Online Readiness Survey

District Name	District Number	ESC Region
ALIEF MONTESSORI COMMUNITY SCHOOL	101815	04
ALPHONSO CRUTCH'S-LIFE SUPPORT CENTER	101817	04
CHILDREN FIRST ACADEMY OF DALLAS	057811	10
CHILDREN FIRST ACADEMY OF HOUSTON	101823	04
COMQUEST ACADEMY	101842	04
DEVERS ISD	146903	04

EDUCATION CENTER INTERNATIONAL ACADEMY	057833	10
ENCINO SCHOOL	024801	02
GIDDINGS STATE SCHOOL	144905	13
JUAN B GALAVIZ CHARTER SCHOOL	101852	04
LEFORS ISD	090902	16
LYNACRE ACADEMY CHARTER SCHOOL	057818	10
NORTHWEST PREPARATORY	101848	04
RISE ACADEMY	152802	17
RON JACKSON STATE JUVENILE CORR COMPLEX UNIT II	025911	15
SAN ISIDRO ISD	214902	01
SOUTH PLAINS	152803	17

Table 3.2 Districts/Charter Schools That Logged In But Did Not Complete the Online Readiness Surveys

District Name	District Number	ESC Region
BIG SPRINGS CHARTER SCHOOL	193801	20
EL PASO SCHOOL OF EXCELLENCE	071805	19
FLORENCE ISD	246902	13
HARRIS COUNTY JUVENILE JUSTICE CHARTER SCHOOL	101811	04
HOUSTON ALTERNATIVE PREPARATORY CHARTER SCHOOL	101851	04
HUNT ISD	133902	20
PRIDDY ISD	167904	12
SAILL	227823	13
STRATFORD ISD	211902	16
THERESA B LEE ACADEMY	220806	11

Table 3.3 Districts/Charter Schools Participating in the Online Readiness Survey

District Name	District Number	ESC Region
A+ Academy	057829	10
Abbott ISD	109901	12
Abernathy ISD	095901	17
Abilene ISD	221901	14
Academy ISD	014901	12
Academy Of Accelerated Learning Inc	101810	04
Academy Of Beaumont	123801	05
Academy Of Careers And Technologies Charter School	015816	20
Academy Of Dallas	057810	10
Accelerated Intermediate Academy	101849	04
Adrian ISD	180903	16
Agua Dulce ISD	178901	02
Al Price State Juvenile Correctional Facility	123915	05

Alamo Heights ISD	015901	20
Alba-Golden ISD	250906	07
Albany ISD	209901	14
Aldine ISD	101902	04
Aledo ISD	184907	11
Alice ISD	125901	02
Alief ISD	101903	04
Allen ISD	043901	10
Alpha Charter School	057832	10
Alpine ISD	022901	18
Alto ISD	037901	07
Alvarado ISD	126901	11
Alvin ISD	020901	04
Alvord ISD	249901	11
Amarillo ISD	188901	16
Ambassadors Preparatory Academy	084804	04
American Youthworks Charter School	227801	13
Amherst ISD	140901	17
Amigos Por Vida-Friends For Life Pub Chtr Sch	101819	04
Anahuac ISD	036901	04
Anderson-Shiro CISD	093901	06
Andrews ISD	002901	18
Angleton ISD	020902	04
Anna ISD	043902	10
Anson ISD	127901	14
Anthony ISD	071906	19
Anton ISD	110901	17
Apple Springs ISD	228905	06
Aquilla ISD	109912	12
Aransas County ISD	004901	02
Aransas Pass ISD	205901	02
Archer City ISD	005901	09
Argyle ISD	061910	11
Arlington Classics Academy	220802	11
Arlington ISD	220901	11
Arp ISD	212901	07
Aspermont ISD	217901	14
Athens ISD	107901	07
Atlanta ISD	034901	08
Aubrey ISD	061907	11
Audre And Bernard Rapoport Academy	161802	12
Austin Can Academy Charter School	227818	13
Austin Discovery School	227821	13
Austin ISD	227901	13
Austwell-Tivoli ISD	196901	03
Avalon ISD	070901	10
Avery ISD	194902	08

Avinger ISD	034902	08
Aw Brown-Fellowship Charter School	057816	10
Axtell ISD	161918	12
Azle ISD	220915	11
Azleway Charter School	212803	07
Baird ISD	030903	14
Ballinger ISD	200901	15
Balmorhea ISD	195902	18
Bandera ISD	010902	20
Bangs ISD	025901	15
Banquete ISD	178913	02
Barbers Hill ISD	036902	04
Bartlett ISD	014902	13
Bastrop ISD	011901	13
Bay Area Charter Inc	101809	04
Bay City ISD	158901	03
Beatrice Mayes Institute Charter School	101847	04
Beaumont ISD	123910	05
Beckville ISD	183901	07
Beeville ISD	013901	02
Bellevue ISD	039904	09
Bells ISD	091901	10
Bellville ISD	008901	06
Belton ISD	014903	12
Ben Bolt-Palito Blanco ISD	125902	02
Benavides ISD	066901	02
Benjamin ISD	138904	09
Benji's Special Educational Academy Charter School	101820	04
Bexar County Academy	015809	20
Big Sandy ISD	187901	06
Big Sandy ISD	230901	07
Big Spring ISD	114901	18
Birdville ISD	220902	11
Bishop CISD	178902	02
Blackwell CISD	177903	14
Blanco ISD	016902	13
Bland ISD	116915	10
Blanket ISD	025904	15
Bloomburg ISD	034909	08
Blooming Grove ISD	175902	12
Bloomington ISD	235901	03
Blue Ridge ISD	043917	10
Bluff Dale ISD	072904	11
Blum ISD	109913	12
Boerne ISD	130901	20
Boles ISD	116916	10
Boling ISD	241901	03

Bonham ISD	074903	10
Booker ISD	148901	16
Borden County ISD	017901	17
Borger ISD	117901	16
Bosqueville ISD	161923	12
Bovina ISD	185901	16
Bowie ISD	169901	09
Boyd ISD	249902	11
Boys Ranch ISD	180901	16
Brackett ISD	136901	20
Brady ISD	160901	15
Brazos ISD	008903	06
Brazos River Charter School	213801	11
Brazos School For Inquiry & Creativity	021803	06
Brazosport ISD	020905	04
Breckenridge ISD	215901	14
Bremond ISD	198901	06
Brenham ISD	239901	06
Bridge City ISD	181901	05
Bridgeport ISD	249903	11
Bright Ideas Charter	243801	09
Broaddus ISD	203902	07
Brock ISD	184909	11
Bronte ISD	041901	15
Brookeland ISD	121902	05
Brookesmith ISD	025908	15
Brooks Academy Of Science And Engineering	015830	20
Brooks County ISD	024901	02
Brownfield ISD	223901	17
Brownsboro ISD	107902	07
Brownsville ISD	031901	01
Brownwood ISD	025902	15
Bruceville-Eddy ISD	161919	12
Bryan ISD	021902	06
Bryson ISD	119901	09
Buckholts ISD	166907	06
Buena Vista ISD	186901	18
Buffalo ISD	145901	06
Bullard ISD	212902	07
Buna ISD	121903	05
Burkburnett ISD	243901	09
Burkeville ISD	176901	05
Burleson ISD	126902	11
Burnet CISD	027903	13
Burnham Wood Charter School District	071801	19
Burton ISD	239903	06
Bushland ISD	188904	16

Byers ISD	039901	09
Bynum ISD	109902	12
Caddo Mills ISD	116901	10
Calallen ISD	178903	02
Caldwell ISD	026901	06
Calhoun County ISD	029901	03
Callisburg ISD	049905	11
Calvert ISD	198902	06
Calvin Nelms Charter Schools	101837	04
Cameron ISD	166901	06
Campbell ISD	116910	10
Canadian ISD	106901	16
Canton ISD	234902	10
Canutillo ISD	071907	19
Canyon ISD	191901	16
Carlisle ISD	201913	07
Carrizo Springs CISD	064903	20
Carroll ISD	220919	11
Carrollton-Farmers Branch ISD	057903	10
Carthage ISD	183902	07
Castleberry ISD	220917	11
Cayuga ISD	001902	07
Cedar Hill ISD	057904	10
Cedars International Academy	227817	13
Celeste ISD	116902	10
Celina ISD	043903	10
Center ISD	210901	07
Center Point ISD	133901	20
Centerville ISD	145902	06
Centerville ISD	228904	06
Central Heights ISD	174908	07
Central ISD	003907	07
Channelview ISD	101905	04
Channing ISD	103901	16
Chapel Hill Academy	220815	11
Chapel Hill ISD	212909	07
Chapel Hill ISD	225906	08
Charlotte ISD	007901	20
Cherokee ISD	206903	15
Chester ISD	229906	05
Chico ISD	249904	11
Childress ISD	038901	16
Chillicothe ISD	099902	09
Chilton ISD	073901	12
China Spring ISD	161920	12
Chireno ISD	174901	07
Chisum ISD	139905	08

Christoval ISD	226901	15
Cisco ISD	067902	14
City View ISD	243906	09
Clarendon ISD	065901	16
Clarksville ISD	194904	08
Claude ISD	006902	16
Clear Creek ISD	084910	04
Cleburne ISD	126903	11
Cleveland ISD	146901	04
Clifton ISD	018901	12
Clint ISD	071901	19
Clyde CISD	030902	14
Coahoma ISD	114902	18
Coldspring-Oakhurst CISD	204901	06
Coleman ISD	042901	15
College Station ISD	021901	06
Collinsville ISD	091902	10
Colmesneil ISD	229901	05
Colorado ISD	168901	14
Columbia-Brazoria ISD	020907	04
Columbus ISD	045902	03
Comal ISD	046902	13
Comanche ISD	047901	14
Comfort ISD	130902	13
Commerce ISD	116903	10
Community ISD	043918	10
Como-Pickton CISD	112908	08
Comstock ISD	233903	15
Connally ISD	161921	12
Conroe ISD	170902	06
Coolidge ISD	147901	12
Cooper ISD	060902	08
Coppell ISD	057922	10
Copperas Cove ISD	050910	12
Corpus Christi ISD	178904	02
Corpus Christi Montessori School	178807	02
Corrigan-Camden ISD	187904	06
Corsicana ISD	175903	12
Corsicana Residential Treatment Center	175909	12
Cotton Center ISD	095902	17
Cotulla ISD	142901	20
Coupland ISD	246914	13
Covington ISD	109903	12
Crandall ISD	129901	10
Crane ISD	052901	18
Cranfills Gap ISD	018908	12
Crawford ISD	161901	12

Crockett County Consolidated Csd	053001	15
Crockett ISD	113901	06
Crockett State School	113904	06
Crosby ISD	101906	04
Crosbyton CISD	054901	17
Cross Plains ISD	030901	14
Cross Roads ISD	107904	07
Crosstimbers Academy	184801	11
Crowell ISD	078901	09
Crowley ISD	220912	11
Crystal City ISD	254901	20
Cuero ISD	062901	03
Culberson County-Allamoore ISD	055901	18
Cumberland Academy	212801	07
Cumby ISD	112905	08
Cushing ISD	174902	07
Cypress-Fairbanks ISD	101907	04
Daingerfield-Lone Star ISD	172902	08
Dalhart ISD	056901	16
Dallas Can Academy Charter	057804	10
Dallas Community Charter School	057805	10
Dallas County Juvenile Justice	057814	10
Dallas ISD	057905	10
Damon ISD	020910	04
Danbury ISD	020904	04
Darrouzett ISD	148905	16
Dawson ISD	175904	17
Dawson ISD	058902	12
Dayton ISD	146902	04
De Leon ISD	047902	14
Decatur ISD	249905	11
Deer Park ISD	101908	04
Dekalb ISD	019901	08
Del Valle ISD	227910	13
Dell City ISD	115903	19
Denison ISD	091903	10
Denton ISD	061901	11
Denver City ISD	251901	17
Desoto ISD	057906	10
Detroit ISD	194905	08
Devine ISD	163901	20
Dew ISD	081906	12
Deweyville ISD	176903	05
D'hanis ISD	163902	20
Diboll ISD	003905	07
Dickinson ISD	084901	04
Dilley ISD	082902	20

Dime Box ISD	144903	13
Dimmitt ISD	035901	16
Divide ISD	133905	20
Dodd City ISD	074904	10
Donna ISD	108902	01
Doss Consolidated Csd	086024	13
Douglass ISD	174911	07
Dr M L Garza-Gonzalez Charter School	178801	02
Draw Academy	101856	04
Dripping Springs ISD	105904	13
Driscoll ISD	178905	02
Dublin ISD	072902	11
Dumas ISD	171901	16
Duncanville ISD	057907	10
Eagle Academies Of Texas	221801	14
Eagle Advantage Schools	057806	10
Eagle Mt-Saginaw ISD	220918	11
Eagle Pass ISD	159901	20
Eanes ISD	227909	13
Early ISD	025909	15
East Bernard ISD	241902	03
East Central ISD	015911	20
East Chambers ISD	036903	04
East Fort Worth Montessori Academy	220811	11
East Texas Charter Schools	092801	07
Eastland ISD	067903	14
Ector County ISD	068901	18
Ector ISD	074905	10
Edcouch-Elsa ISD	108903	01
Eden CISD	048901	15
Eden Park Academy	227803	13
Edgewood ISD	234903	20
Edgewood ISD	015905	07
Edinburg CISD	108904	01
Edna ISD	120901	03
Education Center	061802	11
Ehrhart School	123805	05
El Campo ISD	241903	03
El Paso Academy	071804	19
El Paso ISD	071902	19
Electra ISD	243902	09
Elgin ISD	011902	13
Elkhart ISD	001903	07
Elysian Fields ISD	102906	07
Ennis ISD	070903	10
Era ISD	049906	11
Erath Excels Academy Inc	072802	11

Etoile ISD	174910	07
Eula ISD	030906	14
Eustace ISD	107905	07
Evadale ISD	121906	05
Evant ISD	050901	12
Everman ISD	220904	11
Evins Regional Juvenile Center	108917	01
Evolution Academy Charter School	057834	10
Excelsior ISD	210906	07
Ezzell ISD	143906	03
Fabens ISD	071903	19
Fairfield ISD	081902	12
Faith Family Academy Of Oak Cliff	057815	10
Falls City ISD	128904	03
Fannindel ISD	060914	08
Farmersville ISD	043904	10
Farwell ISD	185902	16
Fayetteville ISD	075906	13
Ferris ISD	070905	10
Flatonia ISD	075901	13
Floresville ISD	247901	20
Flour Bluff ISD	178914	02
Floydada ISD	077901	17
Focus Learning Academy	057817	10
Follett ISD	148902	16
Forestburg ISD	169910	09
Forney ISD	129902	10
Forsan ISD	114904	18
Fort Bend ISD	079907	04
Fort Elliott CISD	242906	16
Fort Stockton ISD	186902	18
Fort Worth Academy Of Fine Arts	220809	11
Fort Worth Can Academy	220804	11
Fort Worth ISD	220905	11
Franklin ISD	198903	06
Frankston ISD	001904	07
Fredericksburg ISD	086901	13
Freer ISD	066903	02
Frenship ISD	152907	17
Friendswood ISD	084911	04
Friona ISD	185903	16
Frisco ISD	043905	10
Frost ISD	175905	12
Fruit Of Excellence	227812	13
Fruitvale ISD	234909	07
Ft Davis ISD	122901	18
Ft Hancock ISD	115901	19

Ft Sam Houston ISD	015914	20
Gabriel Tafolla Charter School	232801	20
Gainesville ISD	049901	11
Galena Park ISD	101910	04
Galveston ISD	084902	04
Ganado ISD	120902	03
Garland ISD	057909	10
Garner ISD	184911	11
Garrison ISD	174903	07
Gary ISD	183904	07
Gatesville ISD	050902	12
Gateway (Student Alternative Program Inc)	240801	01
Gateway Charter Academy	057831	10
Gause ISD	166902	06
George Gervin Academy	015802	20
George I Sanchez Charter	101804	04
George I Sanchez Charter Hs San Antonio Branch	015812	20
George West ISD	149901	02
Georgetown ISD	246904	13
Gholson ISD	161925	12
Giddings ISD	144901	13
Gilmer ISD	230902	07
Girls & Boys Prep Academy	101805	04
Gladewater ISD	092901	07
Glasscock County ISD	087901	18
Glen Rose ISD	213901	11
Godley ISD	126911	11
Gold Burg ISD	169906	09
Golden Rule Charter School	057835	10
Goldthwaite ISD	167901	12
Goliad ISD	088902	03
Gonzales ISD	089901	13
Goodrich ISD	187903	06
Goose Creek CISD	101911	04
Gordon ISD	182901	11
Gorman ISD	067904	14
Grady ISD	156905	18
Graford ISD	182902	11
Graham ISD	252901	09
Granbury ISD	111901	11
Grand Prairie ISD	057910	10
Grand Saline ISD	234904	07
Grandfalls-Royalty ISD	238904	18
Grandview ISD	126904	11
Grandview-Hopkins ISD	090905	16
Granger ISD	246905	13
Grape Creek ISD	226907	15

Grapeland ISD	113902	06
Grapevine-Colleyville ISD	220906	11
Greenville ISD	116905	10
Greenwood ISD	165902	18
Gregory-Portland ISD	205902	02
Groesbeck ISD	147902	12
Groom ISD	033901	16
Groveton ISD	228901	06
Gruver ISD	098901	16
Guardian Angel Performance Arts Academy	015813	20
Gunter ISD	091917	10
Gustine ISD	047903	14
Guthrie Csd	135001	17
Hale Center ISD	095903	17
Hallettsville ISD	143901	03
Hallsburg ISD	161924	12
Hallsville ISD	102904	07
Hamilton ISD	097902	12
Hamlin ISD	127903	14
Hamshire-Fannett ISD	123914	05
Happy ISD	219901	16
Hardin ISD	146904	04
Hardin-Jefferson ISD	100905	05
Harlandale ISD	015904	20
Harleton ISD	102905	07
Harlingen CISD	031903	01
Harmony Elementary (Austin)	227822	13
Harmony ISD	230905	07
Harmony School Of Excellence	101858	04
Harmony School Of Innovation	101857	04
Harmony Science Acad (Beaumont)	123806	05
Harmony Science Acad (College Station)	021804	06
Harmony Science Acad (El Paso)	071806	19
Harmony Science Acad (Fort Worth)	220813	11
Harmony Science Acad (Lubbock)	152805	17
Harmony Science Acad (San Antonio)	015828	20
Harmony Science Acad (Waco)	161807	12
Harmony Science Academy	101846	04
Harmony Science Academy (Austin)	227816	13
Harper ISD	086902	13
Harrold ISD	244901	09
Hart ISD	035902	16
Hartley ISD	103902	16
Harts Bluff ISD	225907	08
Haskell CISD	104901	14
Hawkins ISD	250902	07
Hawley ISD	127904	14

Hays CISD	105906	13
Hearne ISD	198905	06
Hedley ISD	065902	16
Hemphill ISD	202903	07
Hempstead ISD	237902	04
Henderson ISD	201902	07
Henrietta ISD	039902	09
Hereford ISD	059901	16
Hermleigh ISD	208901	14
Hico ISD	097903	12
Hidalgo ISD	108905	01
Higgins ISD	148903	16
Higgs Carter King Gifted & Talented Charter Acad	015803	20
High Island ISD	084903	05
Highland ISD	177905	14
Highland Park ISD	057911	10
Highland Park ISD	188903	16
Hillsboro ISD	109904	12
Hitchcock ISD	084908	04
Holland ISD	014905	12
Holliday ISD	005902	09
Hondo ISD	163904	20
Honey Grove ISD	074907	10
Honors Academy	057825	10
Hooks ISD	019902	08
Houston Can Academy Charter School	101812	04
Houston Gateway Academy Inc	101828	04
Houston Heights High School	101821	04
Houston Heights Learning Academy Inc	101829	04
Houston ISD	101912	04
Howe ISD	091905	10
Hubbard ISD	019913	08
Hubbard ISD	109905	12
Huckabay ISD	072908	11
Hudson ISD	003902	07
Huffman ISD	101925	04
Hughes Springs ISD	034903	08
Hull-Daisetta ISD	146905	04
Humble ISD	101913	04
Huntington ISD	003904	07
Huntsville ISD	236902	06
Hurst-Euless-Bedford ISD	220916	11
Hutto ISD	246906	13
Idalou ISD	152910	17
Idea Academy	108807	01
Industrial ISD	120905	03
Ingleside ISD	205903	02

Ingram ISD	133904	20
Inspired Vision Academy	057830	10
Iola ISD	093903	06
Iowa Park CISD	243903	09
Ira ISD	208903	14
Iraan-Sheffield ISD	186903	18
Iredell ISD	018906	12
Irion County ISD	118902	15
Irving ISD	057912	10
Italy ISD	070907	10
Itasca ISD	109907	12
Jacksboro ISD	119902	09
Jacksonville ISD	037904	07
Jamie's House Charter School	101822	04
Jarrell ISD	246907	13
Jasper ISD	121904	05
Jayton-Girard ISD	132902	17
Jean Massieu Academy	057819	10
Jefferson ISD	155901	08
Jesse Jackson Academy	101831	04
Jim Hogg County ISD	124901	01
Jim Ned CISD	221911	14
Joaquin ISD	210902	07
John H Wood Jr Public Charter District	015808	20
Johnson City ISD	016901	13
Jonesboro ISD	050909	12
Joshua ISD	126905	11
Jourdanton ISD	007902	20
Jubilee Academic Center	015822	20
Judson ISD	015916	20
Junction ISD	134901	15
Karnack ISD	102901	07
Karnes City ISD	128901	03
Katherine Anne Porter School	105801	13
Katy ISD	101914	04
Kaufman ISD	129903	10
Keene ISD	126906	11
Keller ISD	220907	11
Kelton ISD	242905	16
Kemp ISD	129904	10
Kendleton ISD	079908	04
Kenedy County Wide Csd	131001	02
Kenedy ISD	128902	03
Kennard ISD	113906	06
Kennedale ISD	220914	11
Kerens ISD	175907	12
Kermit ISD	248901	18

Kerrville ISD	133903	20
Kilgore ISD	092902	07
Killeen ISD	014906	12
Kingsville ISD	137901	02
Kipp Aspire Academy	015826	20
Kipp Austin College Prep Sch Inc	227820	13
Kipp Inc Charter	101813	04
Kipp Southeast Houston	101860	04
Kipp Truth Academy	057837	10
Kirbyville CISD	121905	05
Klein ISD	101915	04
Klondike ISD	058905	17
Knippa ISD	232901	20
Knox City-O'brien CISD	138902	09
Kopperl ISD	018907	12
Kountze ISD	100903	05
Kress ISD	219905	16
Krum ISD	061905	11
La Academia De Estrellas	057839	10
La Amistad Love & Learning Academy	101833	04
La Escuela De Las Americas	015811	20
La Fe Preparatory School	071807	19
La Feria ISD	031905	01
La Gloria ISD	125906	02
La Grange ISD	075902	13
La Joya ISD	108912	01
La Marque ISD	084904	04
La Porte ISD	101916	04
La Pryor ISD	254902	20
La Vega ISD	161906	12
La Vernia ISD	247903	20
La Villa ISD	108914	01
Lackland ISD	015913	20
Lago Vista ISD	227912	13
Lake Dallas ISD	061912	11
Lake Travis ISD	227913	13
Lake Worth ISD	220910	11
Lamar CISD	079901	04
Lamesa ISD	058906	17
Lampasas ISD	141901	12
Lancaster ISD	057913	10
Laneville ISD	201903	07
Lapoynor ISD	107910	07
Laredo ISD	240901	01
Lasara ISD	245901	01
Latexo ISD	113905	06
Lazbuddie ISD	185904	16

Leakey ISD	193902	20
Leander ISD	246913	13
Leary ISD	019914	08
Leggett ISD	187906	06
Leon ISD	145911	06
Leonard ISD	074909	10
Levelland ISD	110902	17
Leveretts Chapel ISD	201904	07
Lewisville ISD	061902	11
Lexington ISD	144902	13
Liberty Hill ISD	246908	13
Liberty ISD	146906	04
Liberty-Eylau ISD	019908	08
Life School	057807	10
Lighthouse Charter School	015825	20
Lindale ISD	212903	07
Linden-Kildare CISD	034905	08
Lindsay ISD	049907	11
Lingleville ISD	072909	11
Lipan ISD	111902	11
Little Cypress-Mauriceville CISD	181908	05
Little Elm ISD	061914	11
Littlefield ISD	140904	17
Livingston ISD	187907	06
Llano ISD	150901	13
Lockhart ISD	028902	13
Lockney ISD	077902	17
Lohn ISD	160905	15
Lometa ISD	141902	12
London ISD	178906	02
Lone Oak ISD	116906	10
Longview ISD	092903	07
Loop ISD	083902	17
Loraine ISD	168902	14
Lorena ISD	161907	12
Lorenzo ISD	054902	17
Los Fresnos CISD	031906	01
Louise ISD	241906	03
Lovejoy ISD	043919	10
Lovelady ISD	113903	06
Lubbock ISD	152901	17
Lubbock-Cooper ISD	152906	17
Lueders-Avoca ISD	127905	14
Lufkin ISD	003903	07
Luling ISD	028903	13
Lumberton ISD	100907	05
Lyford CISD	245902	01

Lytle ISD	007904	20
Mabank ISD	129905	10
Madisonville CISD	154901	06
Magnolia ISD	170906	06
Mainland Preparatory Academy	084801	04
Malakoff ISD	107906	07
Malone ISD	109908	12
Malta ISD	019910	08
Manor ISD	227907	13
Mansfield ISD	220908	11
Marathon ISD	022902	18
Marble Falls ISD	027904	13
Marfa ISD	189901	18
Marion ISD	094904	13
Marlin ISD	073903	12
Marshall ISD	102902	07
Mart ISD	161908	12
Martins Mill ISD	234905	07
Martinsville ISD	174909	07
Mason ISD	157901	15
Matagorda ISD	158904	03
Mathis ISD	205904	02
Maud ISD	019903	08
May ISD	025905	15
Maypearl ISD	070915	10
Mcallen ISD	108906	01
Mccamey ISD	231901	18
Mcdade ISD	011905	13
Mcgregor ISD	161909	12
Mckinney ISD	043907	10
Mclean ISD	090903	16
Mclennan Co St Juvenile Correction Facility Ii	161927	12
Mcleod ISD	034906	08
Mcmullen County ISD	162904	02
Meadow ISD	223902	17
Medical Center Charter School	101801	04
Medina ISD	010901	20
Medina Valley ISD	163908	20
Melissa ISD	043908	10
Memphis ISD	096904	16
Menard ISD	164901	15
Mercedes ISD	108907	01
Meridian ISD	018902	12
Merkel ISD	221904	14
Mesquite ISD	057914	10
Metro Academy Of Math And Science	220808	11
Mexia ISD	147903	12

Meyerpark Elementary	101855	04
Meyersville ISD	062906	03
Miami ISD	197902	16
Midland Academy Charter School	165802	18
Midland ISD	165901	18
Midlothian ISD	070908	10
Mid-Valley Academy	108804	01
Midway ISD	039905	09
Midway ISD	161903	12
Milano ISD	166903	06
Mildred ISD	175910	12
Miles ISD	200902	15
Milford ISD	070909	10
Miller Grove ISD	112907	08
Millsap ISD	184904	11
Mineola ISD	250903	07
Mineral Wells ISD	182903	11
Mission CISD	108908	01
Monahans-Wickett-Pyote ISD	238902	18
Montague ISD	169908	09
Monte Alto ISD	108915	01
Montgomery ISD	170903	06
Moody ISD	161910	12
Moran ISD	209902	14
Morgan ISD	018903	12
Morgan Mill ISD	072910	11
Morton ISD	040901	17
Motley County ISD	173901	17
Moulton ISD	143902	03
Mount Calm ISD	109910	12
Mount Enterprise ISD	201907	07
Mount Pleasant ISD	225902	08
Mount Vernon ISD	080901	08
Muenster ISD	049902	11
Muleshoe ISD	009901	17
Mullin ISD	167902	12
Mumford ISD	198906	06
Munday CISD	138903	09
Murchison ISD	107908	07
Nacogdoches ISD	174904	07
Natalia ISD	163903	20
Navarro ISD	094903	13
Navasota ISD	093904	06
Nazareth ISD	035903	16
Neches ISD	001906	07
Nederland ISD	123905	05
Needville ISD	079906	04

New Boston ISD	019905	08
New Braunfels ISD	046901	13
New Caney ISD	170908	06
New Deal ISD	152902	17
New Diana ISD	230906	07
New Frontiers Charter School	015805	20
New Home ISD	153905	17
New Summerfield ISD	037908	07
New Waverly ISD	236901	06
Newcastle ISD	252902	09
Newton ISD	176902	05
Nixon-Smiley CISD	089903	13
Nocona ISD	169902	09
Nordheim ISD	062902	03
Normangee ISD	145906	06
North East ISD	015910	20
North Forest ISD	101909	04
North Hills Preparatory School	057803	10
North Hopkins ISD	112906	08
North Houston H S For Business	101834	04
North Lamar ISD	139911	08
North Texas Elementary School Of The Arts	220814	11
North Zulch ISD	154903	06
Northside ISD	244905	20
Northside ISD	015915	09
Northwest ISD	061911	11
Nova Academy	057809	10
Nova Academy (Southeast)	057827	10
Novice ISD	042906	15
Nueces Canyon CISD	069902	15
Nursery ISD	235904	03
Nyos Charter School	227804	13
Oakwood ISD	145907	06
Odem-Edroy ISD	205905	02
O'donnell ISD	153903	17
Odyssey Academy Inc	084802	04
Oglesby ISD	050904	12
Olfen ISD	200906	15
Olney ISD	252903	09
Olton ISD	140905	17
Onalaska ISD	187910	06
One Stop Multiservice Charter School	108801	01
Orange Grove ISD	125903	02
Orangefield ISD	181905	05
Ore City ISD	230903	07
Orenda Charter School	014804	12
Outreach Word Academy	235801	03

Overton ISD	201908	07
Paducah ISD	051901	17
Paint Creek ISD	104907	14
Paint Rock ISD	048903	15
Palacios ISD	158905	03
Palestine ISD	001907	07
Palmer ISD	070910	10
Palo Pinto ISD	182906	11
Pampa ISD	090904	16
Panhandle ISD	033902	16
Panola Charter School	183801	07
Panther Creek CISD	042905	15
Paradigm Accelerated Charter School	072801	11
Paradise ISD	249906	11
Paris ISD	139909	08
Pasadena ISD	101917	04
Paso Del Norte	071803	19
Patton Springs ISD	063906	17
Pawnee ISD	013902	02
Peak Preparatory School	057838	10
Pearland ISD	020908	04
Pearsall ISD	082903	20
Peaster ISD	184908	11
Pecos-Barstow-Toyah ISD	195901	18
Pegasus School Of Liberal Arts And Sciences	057802	10
Penelope ISD	109914	12
Perrin-Whitt CISD	119903	09
Perryton ISD	179901	16
Petersburg ISD	095904	17
Petrolia ISD	039903	09
Pettus ISD	013903	02
Pewitt CISD	172905	08
Pflugerville ISD	227904	13
Pharr-San Juan-Alamo ISD	108909	01
Phoenix Charter School	116801	10
Pilot Point ISD	061903	11
Pine Tree ISD	092904	07
Pineywoods Community Academy	003801	07
Pittsburg ISD	032902	08
Plains ISD	251902	17
Plainview ISD	095905	17
Plano ISD	043910	10
Pleasant Grove ISD	019912	08
Pleasanton ISD	007905	20
Plemons-Stinnett-Phillips CISD	117904	16
Point Isabel ISD	031909	01
Ponder ISD	061906	11

Poolville ISD	184901	11
Por Vida Academy	015801	20
Port Aransas ISD	178908	02
Port Arthur ISD	123907	05
Port Neches-Groves ISD	123908	05
Positive Solutions Charter School	015814	20
Post ISD	085902	17
Poteet ISD	007906	20
Poth ISD	247904	20
Pottsboro ISD	091913	10
Prairie Lea ISD	028906	13
Prairie Valley ISD	169909	09
Prairiland ISD	139912	08
Premont ISD	125905	02
Presidio ISD	189902	18
Princeton ISD	043911	10
Pringle-Morse CISD	098903	16
Progreso ISD	108910	01
Prosper ISD	043912	10
Quanah ISD	099903	09
Queen City ISD	034907	08
Quinlan ISD	116908	10
Quitman ISD	250904	07
Radiance Academy Of Learning	015815	20
Rains ISD	190903	07
Ralls ISD	054903	17
Ramirez Csd	066005	02
Ranch Academy	234801	07
Randolph Field ISD	015906	20
Ranger ISD	067907	14
Rankin ISD	231902	18
Raul Yzaguirre School For Success	101806	04
Raven School	236801	06
Raymondville ISD	245903	01
Reagan County ISD	192901	18
Red Lick ISD	019911	08
Red Oak ISD	070911	10
Redwater ISD	019906	08
Refugio ISD	196903	03
Ricardo ISD	137902	02
Rice CISD	045903	03
Rice ISD	175911	12
Richard Milburn Academy (Amarillo)	188801	16
Richard Milburn Academy (Beaumont)	123804	05
Richard Milburn Academy (Ector County)	068801	18
Richard Milburn Academy (Fort Worth)	220812	11
Richard Milburn Academy (Midland)	165801	18

Richard Milburn Academy (Suburban Houston)	101854	04
Richard Milburn Alter High School (Corpus Christi)	178804	02
Richard Milburn Alter High School (Killeen)	014801	12
Richard Milburn Alter High School (Lubbock)	152801	17
Richards ISD	093905	06
Richardson ISD	057916	10
Richland Collegiate Hs Of Math Science Engineering	057840	10
Richland Springs ISD	206902	15
Riesel ISD	161912	12
Rio Grande City CISD	214901	01
Rio Hondo ISD	031911	01
Rio Vista ISD	126907	11
Ripley House Charter School	101853	04
Rising Star ISD	067908	14
River Road ISD	188902	16
Rivercrest ISD	194903	08
Riviera ISD	137903	02
Robert Lee ISD	041902	15
Robinson ISD	161922	12
Robstown ISD	178909	02
Roby CISD	076903	14
Rochelle ISD	160904	15
Rockdale ISD	166904	06
Rocksprings ISD	069901	15
Rockwall ISD	199901	10
Rogers ISD	014907	12
Roma ISD	214903	01
Ron Jackson State Juvenile Corr Complex Unit I	025910	15
Roosevelt ISD	152908	17
Ropes ISD	110905	17
Roscoe ISD	177901	14
Rosebud-Lott ISD	073905	12
Rotan ISD	076904	14
Round Rock ISD	246909	13
Round Top-Carmine ISD	075908	13
Roxton ISD	139908	08
Royal ISD	237905	04
Royse City ISD	199902	10
Rule ISD	104903	14
Runge ISD	128903	03
Rusk ISD	037907	07
S And S CISD	091914	10
Sabinal ISD	232902	20
Sabine ISD	092906	07
Sabine Pass ISD	123913	05
Saint Jo ISD	169911	09
Salado ISD	014908	12

Saltillo ISD	112909	08
Sam Rayburn ISD	074917	10
Samnorwood ISD	044904	16
San Angelo ISD	226903	15
San Antonio Can High School	015817	20
San Antonio ISD	015907	20
San Antonio Preparatory Academy	015824	20
San Antonio School For Inquiry & Creativity	015820	20
San Antonio Technology Academy	015823	20
San Augustine ISD	203901	07
San Benito CISD	031912	01
San Diego ISD	066902	02
San Elizario ISD	071904	19
San Felipe-Del Rio CISD	233901	15
San Marcos CISD	105902	13
San Perlita ISD	245904	01
San Saba ISD	206901	15
San Vicente ISD	022903	18
Sands CISD	058909	17
Sanford-Fritch ISD	117903	16
Sanger ISD	061908	11
Santa Anna ISD	042903	15
Santa Fe ISD	084909	04
Santa Gertrudis ISD	137904	02
Santa Maria ISD	031913	01
Santa Rosa ISD	031914	01
Santo ISD	182904	11
Savoy ISD	074911	10
Schertz-Cibolo-U City ISD	094902	13
Schleicher ISD	207901	15
School Of Excellence In Education	015806	20
School Of Liberal Arts And Science	057821	10
School Of Science And Technology	015827	20
Schulenburg ISD	075903	13
Scurry-Rosser ISD	129910	10
Seagraves ISD	083901	17
Sealy ISD	008902	06
Seashore Learning Ctr Charter	178802	02
Seashore Middle Acad	178808	02
Seguin ISD	094901	13
Seminole ISD	083903	17
Ser-Ninos Charter School	101802	04
Seymour ISD	012901	09
Shallowater ISD	152909	17
Shamrock ISD	242902	16
Sharyland ISD	108911	01
Shekinah Radiance Academy	015819	20

Shelbyville ISD	210903	07
Sheldon ISD	101924	04
Shepherd ISD	204904	06
Sherman ISD	091906	10
Shiner ISD	143903	03
Sidney ISD	047905	14
Sierra Blanca ISD	115902	19
Silsbee ISD	100904	05
Silverton ISD	023902	16
Simms ISD	019909	08
Sinton ISD	205906	02
Sivells Bend ISD	049909	11
Skidmore-Tynan ISD	013905	02
Slaton ISD	152903	17
Slidell ISD	249908	11
Slocum ISD	001909	07
Smithville ISD	011904	13
Smyer ISD	110906	17
Snook ISD	026903	06
Snyder ISD	208902	14
Socorro ISD	071909	19
Somerset ISD	015909	20
Somerville ISD	026902	06
Sonora ISD	218901	15
South San Antonio ISD	015908	20
South Texas ISD	031916	01
Southland ISD	085903	17
Southside ISD	015917	20
Southwest ISD	015912	20
Southwest Preparatory School	015807	20
Southwest School	101838	04
Spearman ISD	098904	16
Splendora ISD	170907	06
Spring Branch ISD	101920	04
Spring Creek ISD	117907	16
Spring Hill ISD	092907	07
Spring ISD	101919	04
Springlake-Earth ISD	140907	17
Springtown ISD	184902	11
Spur ISD	063903	17
Spurger ISD	229905	05
St Anthony School	057836	10
St Mary's Academy Charter School	013801	02
Stafford Msd	079910	04
Stamford ISD	127906	14
Stanton ISD	156902	18
Star Charter School	227814	13

Star ISD	167903	12
Stephen F Austin State University Charter School	174801	07
Stephenville	072903	11
Stepping Stones Charter El	101859	04
Sterling City ISD	216901	15
Stockdale ISD	247906	20
Strawn ISD	182905	11
Sudan ISD	140908	17
Sulphur Bluff ISD	112910	08
Sulphur Springs ISD	112901	08
Sundown ISD	110907	17
Sunnyvale ISD	057919	10
Sunray ISD	171902	16
Sweeny ISD	020906	04
Sweet Home ISD	143905	03
Sweetwater ISD	177902	14
Taft ISD	205907	02
Tahoka ISD	153904	17
Tarkington ISD	146907	04
Tatum ISD	201910	07
Taylor ISD	246911	13
Teague ISD	081904	12
Technology Education Charter High School	108802	01
Tekoa Academy Of Accelerated Studies	123803	05
Temple Education Center	014803	12
Temple ISD	014909	12
Tenaha ISD	210904	07
Terlingua Csd	022004	18
Terrell County ISD	222901	18
Terrell ISD	129906	10
Texarkana ISD	019907	08
Texas City ISD	084906	04
Texas Preparatory School	105802	13
Texas Sch For The Blind & Visually Impaired	227905	13
Texas Sch For The Deaf	227906	13
Texas Serenity Academy	170801	06
Texhoma ISD	211901	16
Texline ISD	056902	16
The Rhodes School	101861	04
Thorndale ISD	166905	13
Thrall ISD	246912	13
Three Rivers ISD	149902	02
Three Way ISD	072901	11
Throckmorton ISD	224901	09
Tidehaven ISD	158902	03
Timpson ISD	210905	07
Tioga ISD	091907	10

Tolar ISD	111903	11
Tom Bean ISD	091918	10
Tomball ISD	101921	04
Tornillo ISD	071908	19
Transformative Charter Academy	014802	12
Treetops School International	220801	11
Trent ISD	221905	14
Trenton ISD	074912	10
Trinidad ISD	107907	07
Trinity Basin Preparatory	057813	10
Trinity Charter School	046802	13
Trinity ISD	228903	06
Troup ISD	212904	07
Troy ISD	014910	12
Tulia ISD	219903	16
Tuloso-Midway ISD	178912	02
Turkey-Quitaque ISD	096905	16
Two Dimensions Preparatory Academy	101840	04
Tyler ISD	212905	07
Union Grove ISD	230908	07
Union Hill ISD	230904	07
United ISD	240903	01
Universal Academy	057808	10
University Of Houston Charter School	101807	04
University Of Texas Elementary Charter School	227819	13
University Of Texas University Charter School	227806	13
Utopia ISD	232904	20
Uvalde CISD	232903	20
Valentine ISD	122902	18
Valley Mills ISD	018904	12
Valley View ISD	108916	11
Valley View ISD	049903	01
Van Alstyne ISD	091908	10
Van ISD	234906	07
Van Vleck ISD	158906	03
Vanguard Academy	108808	01
Varnett Charter School	101814	04
Vega ISD	180902	16
Venus ISD	126908	11
Veribest ISD	226908	15
Vernon ISD	244903	09
Victoria ISD	235902	03
Victory Field Correctional Academy	244906	09
Vidor ISD	181907	05
Vysehrad ISD	143904	03
Waco Charter School	161801	12
Waco ISD	161914	12

Waelder ISD	089905	13
Walcott ISD	059902	16
Wall ISD	226906	15
Waller ISD	237904	04
Walnut Bend ISD	049908	11
Walnut Springs ISD	018905	12
Warren ISD	229904	05
Waskom ISD	102903	07
Water Valley ISD	226905	15
Waxahachie Faith Family Academy	070801	10
Waxahachie ISD	070912	10
Weatherford ISD	184903	11
Webb CISD	240904	01
Weimar ISD	045905	03
Wellington ISD	044902	16
Wellman-Union CISD	223904	17
Wells ISD	037909	07
Weslaco ISD	108913	01
West Hardin County CISD	100908	05
West Houston Charter School	101803	04
West ISD	161916	12
West Orange-Cove CISD	181906	05
West Oso ISD	178915	02
West Rusk ISD	201914	07
West Sabine ISD	202905	07
Westbrook ISD	168903	14
Westhoff ISD	062905	03
Westlake Academy Charter School	220810	11
Westphalia ISD	073904	12
Westwood ISD	001908	07
Wharton ISD	241904	03
Wheeler ISD	242903	16
White Deer ISD	033904	16
White Oak ISD	092908	07
White Settlement ISD	220920	11
Whiteface CISD	040902	17
Whitehouse ISD	212906	07
Whitesboro ISD	091909	10
Whitewright ISD	091910	10
Whitharral ISD	110908	17
Whitney ISD	109911	12
Wichita Falls ISD	243905	09
Wildorado ISD	180904	16
Willis ISD	170904	06
Wills Point ISD	234907	10
Wilson ISD	153907	17
Wimberley ISD	105905	13

Windthorst ISD	005904	09
Winfield ISD	225905	08
Winfree Academy Charter Schools	057828	10
Wink-Loving ISD	248902	18
Winnsboro ISD	250907	07
Winona ISD	212910	07
Winters ISD	200904	15
Woden ISD	174906	07
Wolfe City ISD	116909	10
Woodsboro ISD	196902	03
Woodson ISD	224902	09
Woodville ISD	229903	05
Wortham ISD	081905	12
Wylie ISD	043914	10
Wylie ISD	221912	14
Yantis ISD	250905	07
Yes Preparatory Public Schools	101845	04
Yoakum ISD	062903	03
Yorktown ISD	062904	03
Ysleta ISD	071905	19
Zapata County ISD	253901	01
Zavalla ISD	003906	07
Zephyr ISD	025906	15
Zoe Learning Academy	101850	04

APPENDIX 4. DISTRICT-LEVEL AND CAMPUS-LEVEL SURVEY QUESTIONS

Participants of the Texas Education Agency's 2008 Survey of Districts' Readiness for Online Testing are encouraged to read the entire survey before entering answers. To facilitate this, we have provided this copy of the survey questions. **Please note that this copy is for reading purposes only**. Answers to the questions should be entered into the online survey instrument.

District-level Questions

When calculating answers to district survey questions, please include only those computers available for student use during state online testing. Additionally, those participating in this survey may find it useful to print and read the entire survey before beginning to enter answers.

Getting Started:

1. Who is completing the survey for this district? Please check all that apply.

   [ ] superintendent
   [ ] central office representative
   [ ] district technology coordinator
   [ ] district testing coordinator
   [ ] other: _____

Network/Infrastructure:

(The following questions may be best answered by a district technology coordinator.)

2. How does this district provide Internet bandwidth to campuses?

   ( ) The district provides a central, district-wide solution.
   ( ) The district coordinates individual campus solutions.
   ( ) The district provides both centralized and individual campus solutions.
   ( ) The district is NOT involved with providing Internet bandwidth to campuses.

3. Has this district experienced Internet bandwidth congestion (slow Internet performance) during school hours in the past year?

   ( ) yes, approximately once per day or more frequently
   ( ) yes, approximately once per week

( ) yes, approximately once per month
( ) yes, less than once per month
( ) no

4. If this district provides campuses with Internet access, how many campuses are served by this solution? _____

5. Please indicate all of the types of bandwidth monitoring and/or limiting technology that this district uses, or plans to use.

[ ] none
[ ] Norton Internet security
[ ] MacAfee Internet security
[ ] Microsoft networking
[ ] Bloxx
[ ] filters not listed above
[ ] other: _____

6. Does this district use content filters that go beyond URL and e-mail filtering?

( ) yes
( ) no

7. If the answer to question 6 is yes, please identify which filters.

_____

8. To what extent are this district's campuses equipped with on-site file servers?

( ) All campuses have their own file servers.
( ) Some campuses have their own file servers.
( ) Campuses have file servers centrally located at the district.
( ) None of the campuses have their own file servers.

9. If this district uses Web caching software, what is its capacity?

( ) less than 10 GB
( ) 10 GB to less than 50 GB
( ) 50 GB to less than 100 GB
( ) 100 GB or greater
( ) not applicable; this district does NOT use Web caching software

10. What is the total number of computers in portable computing labs, such as Computers on Wheels (COWS), that are available as shared resources across multiple campuses and that could be used for online state testing?

    _____

Financial:

(The following questions may require participation from both a district assessment and technology coordinator.)

11. Approximately what amount of this district's annual technology budget was spent last year on the following areas? (**NOTE:** Please ensure the total amount matches the district's actual technology spending for the 2007–2008 fiscal year.)

	Online testing costs	Total technology costs
purchases that will add new hardware		
replacement of existing hardware		
maintenance of existing hardware		
personnel and human resources		
software		
temporary staffing		
other specify: _____		
Total	total	total

12. Assuming a **2-week online testing window**, what dollar amounts does this district estimate would be needed in each of the following categories to support 100% online state testing in the 2011–2012 school year and continuing for 5 years?

    (**NOTE:** Factor in any changes that would impact these numbers, such as estimated student population changes and hardware replacement costs. Please base your replies on the sample test administrations available by clicking here.)

Amount dedicated to	2011–2012	Next 5 years (2012–2017)
purchases that will add new hardware		
replacement of existing hardware		
maintenance of existing hardware		
personnel and human resources		
software		
temporary staffing		
other specify: _____		
Total	total	total

(Note: Here is a table showing the sample test administrations referred to in questions 12–13. In the actual online survey, a link to the sample test administrations appears instead of the table.)

Sample Online Test Administrations
TAKS/TAKS-M Grades 5 & 8 Math
TAKS Exit Level Retest
TAKS/TAKS-M Grade 3–8
TAKS/TAKS-M Grades 3, 5 & 8 Reading Retest
End-of-Course Testing (Algebra I, Geometry, Biology, Chemistry, U.S. History, Physics, World Geography, English I, Algebra II, English II, World History, and English III)

13. Assuming a **6-week online testing window**, what dollar amounts does this district estimate would be needed in each of the following categories to support 100% online state testing in the 2011–2012 school year and continuing for 5 years?

    (**NOTE:** Factor in any changes that would impact these numbers, such as estimated student population changes and hardware replacement costs. Please base your replies on the sample test administrations, available by clicking here.)

Amount dedicated to	2011–2012	Next 5 years (2012–2017)
purchases that will add new hardware		
replacement of existing hardware		
maintenance of existing hardware		
personnel and human resources		
software		
temporary staffing		
other specify: _____		
Total	total	total

14. Did this district obtain funding in the 2007–2008 fiscal year to support online state testing?

    ( ) yes
    ( ) no

    If yes, of the total funding this district obtained to support online state testing, please indicate the percentage that came from the following sources.

    ___% bonds
    ___% eRate
    ___% internal district funds
    ___% state funds
    ___% TIF (Telecommunications Infrastructure Fund)
    ___% state grants
    ___% federal grants
    ___% private/foundational grants
    ___% campus-based organizations (e.g., PTA/PTO)
    ___% other (specify)
    ___% Total (must add to 100%)

15. Will this district seek funding in the 2008–2009 fiscal year to support online state testing?

    ( ) yes
    ( ) no

If yes, of the total funding this district seeks to support online state testing, please indicate the percentage that will come from the following sources.

___% bonds
___% eRate
___% internal district funds
___% state funds
___% TIF (Telecommunications Infrastructure Fund)
___% state grants
___% federal grants
___% private/foundational grants
___% campus-based organizations (e.g., PTA/PTO)
___% other (specify)
___% Total (must add to 100%)

16. Does this district or its campuses actively pursue grants to help fund technology to support online state testing?

( ) yes
( ) no

17. What is this district's typical computer refresh/replacement cycle?

( ) less than 3 years
( ) every 3 years
( ) every 4 years
( ) every 5 years
( ) more than every 5 years
( ) none; this district doesn't have a specific cycle

18. In this district, current fiscal planning for technology acquisition and replacement extends:

( ) less than 1 year
( ) 1 year to under 2 years
( ) 2 years to under 3 years
( ) more than 3 years

19. Does this district have a disaster recovery plan that covers technology infrastructure?

( ) yes
( ) no

20. In addition to the cost of a new computer, what is this district's approximate expenditure for software purchases and licensing over the computer's lifecycle? (Please remember to consider only those computers that can be used for online state testing.)

Personnel/Staffing:

(The following questions may require participation from both a district assessment and technology coordinator.)

21. What is the total number of full-time technology personnel in this district?

    ____ district technology directors
    ____ district technology managers
    ____ network administration specialists
    ____ database administration specialists
    ____ instructional technology specialists
    ____ repair technicians
    ____ other
    specify: _____
    ____ Total

22. What is the total number of technology personnel available to assist with setup and delivery of online testing? _____

23. What was the total number of assessment staff for 2007–2008 online testing? _____

24. In the 2007–2008 school year, how many total temporary staff were needed to support:

    ____ paper-based state testing
    ____ online state testing

25. Based on the same example schedule in questions 12 and 13 (click here to view the sample test administrations), what is the estimated number of additional staff (full-time and temporary) needed to support online testing in this district in the areas of:

    ____ assessment
    ____ technology
    ____ other
    specify: _____

(Note: Here is a table showing the sample test administrations referred to in questions 26–28. In the actual online survey, a link to the sample test administrations appears instead of the table.)

Sample Online Test Administrations
TAKS/TAKS-M Grades 5 & 8 Math
TAKS Exit Level Retest
TAKS/TAKS-M Grade 3–8
TAKS/TAKS-M Grades 3, 5 & 8 Reading Retest
End-of-Course Testing (Algebra I, Geometry, Biology, Chemistry, U.S. History, Physics, World Geography, English I, Algebra II, English II, World History, and English III)

26. Assuming that all eligible students in this district **tested on paper during the 2007–2008 April primary and EOC administrations** (click here to view the sample test administrations), provide the total number of personnel and hours of work needed to administer the tests, as broken down in the following table.

Personnel	Number of employees	Total hours
technology staff		
assessment/administrative staff		
teaching staff (e.g., test administrators)		
other staff specify: _____		

For questions 27 through 28, please include the estimated totals of both the campus-level and district-level staff time that is, or would be, necessary to support the sample test administrations. (Click here to view the sample test administrations.) Please include any time for training, handling materials, closing test sessions, or other time associated with preparing for, delivering, or finishing the assessment. (Note: Here is a table showing the sample test administrations referred to in questions 27–28. In the actual online survey, a link to the sample test administrations appears instead of the table.)

Sample Online Test Administrations
TAKS/TAKS-M Grades 5 & 8 Math
TAKS Exit Level Retest
TAKS/TAKS-M Grade 3–8
TAKS/TAKS-M Grades 3, 5 & 8 Reading Retest
End-of-Course Testing (Algebra I, Geometry, Biology, Chemistry, U.S. History, Physics, World Geography, English I, Algebra II, English II, World History, and English III)

27. Assuming that all eligible students in this district test online in a 2-week window according to the sample test administrations, provide the total number of personnel and hours of work needed to administer the tests, as broken down in the following table.

Personnel	Number of employees	Total hours
technology staff		
assessment/administrative staff		
teaching staff (e.g., test administrators)		
other staff specify: _____		

28. Assuming that all eligible students in this district test online in a 6-week window according to the sample test administrations, provide the total number of personnel and hours of work needed to administer the tests, as broken down in the following table.

Personnel	Number of employees	Total hours
technology staff		
assessment/administrative staff		
teaching staff (e.g., test administrators)		
other staff specify: _____		

Training:

(The following questions may be best answered by a district testing coordinator.)

29. What was the approximate number of test administrator training hours, per person, required to administer online state testing in 2007–2008?

    ( ) 0–2 hours
    ( ) 3–4 hours
    ( ) 5–8 hours
    ( ) 9+ hours
    ( ) not applicable; this district didn't test online in the 2007–2008 school year

30. What was the total number of test administrators required to administer online state testing in the 2007–2008 school year?

    ( ) (<enter amount>)
    ( ) not applicable; this district didn't test online in the 2007–2008 school year

31. What is the total number of trainers available in this district for providing test administrator training for online state testing? _____

32. What is the estimated number of trainers needed in this district to provide test administrator training for online state testing? _____

Perception of Online Testing:

(The following questions may require participation from both a district assessment and technology coordinator.)

33. What do you perceive as the most important advantages of online testing for this district? Please check all that apply.

    [ ] increased student motivation
    [ ] reduction in the amount of printed materials handled by district and campus staff
    [ ] overall decrease in staffing needs for training and administration
    [ ] increased security of test content
    [ ] rapid reporting
    [ ] potential cost savings
    [ ] reduced handling of secure paper materials
    [ ] no perceived advantages
    [ ] other: _____

34. What do you perceive as this district's greatest challenges in the area of online testing? Please check all that apply.

    [ ] some students may have a difficult time taking the tests
    [ ] increased technology burden on district and campuses
    [ ] not enough computers
    [ ] not enough bandwidth
    [ ] potential cost increases for districts
    [ ] overall increase in staffing needs for training and administration
    [ ] provisions for backups/alternatives in the event of system failure
    [ ] coordination of testing and technical support personnel
    [ ] no perceived challenges
    [ ] other: _____

35. Overall, do you perceive that the advantages of online state testing will outweigh the challenges for this district?

    ( ) yes
    ( ) no

36. What comments or suggestions would this district like to share with regard to moving the state to an all-online state testing program? Please write your response in the space provided below.

Campus-level Questions

When calculating answers to campus survey questions, please include only those computers available for student use during state online testing. Additionally, those participating in this survey may find it useful to print and read the entire survey before beginning to enter answers.

Getting Started:

1. Who is completing the survey for this campus? Please check all that apply.

    [ ] district technology coordinator
    [ ] district testing coordinator
    [ ] campus technology coordinator
    [ ] campus testing coordinator
    [ ] other: _____

Network/Infrastructure:

(The following questions may best be answered by a district or campus technology coordinator.)

2. What is the available bandwidth of this campus's **main** telecommunications/Internet connection, in Megabits/second (Mb/s)?

   ( ) this campus does not have an Internet connection
   ( ) less than 1 Mb/s
   ( ) 1 Mb/s to under 1.5 Mb/s
   ( ) 1.5 Mb/s to under 5 Mb/s
   ( ) 5 Mb/s or greater
   ( ) bandwidth capacity at this individual campus is not known

3. Has this campus experienced Internet bandwidth congestion (slow Internet performance) during school hours in the past 2 years?

   ( ) yes, approximately once per day or more frequently
   ( ) yes, approximately once per week
   ( ) yes, approximately once per month
   ( ) yes, less than once per month
   ( ) no

4. Does this campus have dedicated Internet bandwidth or does it share bandwidth (e.g., with other campuses, districts, etc.)?

   ( ) This campus has its own dedicated bandwidth.
   ( ) This campus shares Internet bandwidth with others.
   If bandwidth is shared, please explain how. _____

5. Which answer below most accurately represents the typical bandwidth use at this campus?

   ( ) 0–24%
   ( ) 25–49%
   ( ) 50–74%
   ( ) 75–100%
   ( ) not applicable
   ( ) bandwidth is not monitored at this campus

6. Which answer below most accurately represents the approximate percentage of computers on this campus that get their Internet access via a wireless connection?

   ( ) none
   ( ) 0–24%
   ( ) 25–49%
   ( ) 50–74%
   ( ) 75–100%
   ( ) not sure

Facilities/Hardware/Software:

(The following questions may be best answered by a district or campus technology coordinator.)

7. How many total classrooms does this campus have? _____

8. How many classrooms at this campus have one or more computers that would be available for online state testing? _____

9. How many computers at this campus are used for student instruction? _____

10. Do students at this campus use computers for written composition (either during instruction or as a tool for creating essays and other written compositions)?

    ( ) yes
    ( ) no

11. If this campus participated in online state testing during the 2007–2008 school year, indicate where the computers used for online state testing were located. Please check all that apply.

    [ ] classroom(s)
    [ ] computer lab(s)
    [ ] library
    [ ] media center(s)
    [ ] other
        specify: _____

Questions 12 through 25 ask about the current number of computers at this campus that can be used by students during an online administration. (Questions 12 through 16 refer specifically to computers located in a classroom

setting, and questions 17 through 21 refer to non-classroom computers, such as those computer labs and libraries.)

Please count only computers which satisfy BOTH of the following conditions:

- The computers meet the minimum technical requirements for online state testing. (**NOTE**: The survey tool will provide a pop-up here indicating the minimum specifications for online state testing in Texas. The pop-up also can be downloaded by visiting http://www.texasassessment.com/survey/techreqs.pdf)
- The computers could be made available for student use during an administration of online assessments. Please do NOT include computers that are in locations or have a usage that would prevent students from using them during a test, even if those computers meet the minimum technical requirements.

12. What is the total number of **computers located ONLY in classrooms** that could be made available for online state testing? **Note:** This does NOT include computers located in labs, libraries, Computers on Wheels (COWS), or other non-classroom settings.

13. Of the computers noted in question 12, indicate the approximate percentage that have the following operating systems:

Operating System*	Percentages (must have a total of 100%)
Win 2000	
Win XP	
Win Vista	
Mac OS X	
Other specify: _____	
Total	<calculated total>

* Reminder: Please only include computers that are available for online state testing AND meet the minimum technical requirements.

14. Of the computers noted in question 12, indicate what percentage are the following ages:

Age of Computers*	Percentages (must have a total of 100%)
Less than 1 year old	
1 year to under 2 years old	
2 years to under 3 years old	
3 years to under 4 years old	
4 years old or greater	
Total	<calculated total>

* Reminder: Please only include computers that are available for online state testing AND meet the minimum technical requirements.

15. Of the computers noted in question 12, indicate what percentage have the following RAM capacities:

RAM Capacity*	Percentages (must have a total of 100%)
256 MB to under 512 MB	
512 MB to under 1 GB	
1 GB to 2 GB	
More than 2 GB	
Total	<calculated total>

* Reminder: Please only include computers that are available for online state testing AND meet the minimum technical requirements.

16. Of the computers noted in question 12, indicate what percentage have monitors with the following **maximum** screen resolution:

Maximum Screen Resolution*	Percentages (must have a total of 100%)
800 X 600	
1024 X 768	
1280 X 1024	
More than 1280 X 1024	
Total	<calculated total>

* Reminder: Please only include computers that are available for online state testing AND meet the minimum technical requirements.

17. What is the total number of computers located OUTSIDE OF classrooms (e.g., in computer labs, libraries, etc.) that could be made available for online state testing? **Note:** This does NOT include computers located in

classroom settings but does include all computers in any other setting that could be used for online state testing.

18. Of the computers noted in question 17, indicate the approximate percentage that have the following operating systems:

Operating Systems*	Percentages (must have a total of 100%)
Win 2000	
Win XP	
Win Vista	
Mac OS X	
Other specify: _____	
Total	<calculated total>

* Reminder: Please only include computers that are available for online state testing AND meet the minimum technical requirements.

19. Of the computers noted in question 17, indicate what percentage are the following ages:

Age of Computer*	Percentages (must have a total of 100%)
Less than 1 year old	
1 year to under 2 years old	
2 years to under 3 years old	
3 years to under 4 years old	
4 years old or greater	
Total	<calculated total>

* Reminder: Please only include computers that are available for online state testing AND meet the minimum technical requirements.

20. Of the computers noted in question 17, indicate what percentage have the following RAM capacities:

RAM Capacity*	Percentages (must have a total of 100%)
256 MB to under 512 MB	
512 MB to under 1 GB	
1 GB to under 2 GB	
2 GB or greater	
Total	<calculated total>

* Reminder: Please only include computers that are available for online state testing AND meet the minimum technical requirements.

21. Of the computers noted in question 17, indicate what percentage have monitors with the following **maximum** screen resolution:

Maximum Screen Resolution*	Percentages (must have a total of 100%)
800 X 600	
1024 X 768	
1280 X 1024	
More than 1280 X 1024	
Total	<calculated total>

* Reminder: Please only include computers that are available for online state testing AND meet the minimum technical requirements.

22. Does the answer to question 17 include any computers from portable computing labs, such as COWS? Please indicate how many if you answer "yes."

( ) no
( ) yes ; _____

For question 23 below, consider **any other campus-specific limitations**—for example, space limitations, electrical power considerations, or computers that could be available for online state testing for a small number of days but could not be dedicated to online state testing for an extended testing window.

23. Given the following testing window lengths, and assuming that high-stakes tests remain untimed, please give a reasonable estimate of the maximum number of students this campus could test within each:

Testing Window Length	Maximum Students Able to Test
1-day window	
1-week window	
2-week window	
3-week window	
4-week window	
5+-week window	

24. Do all students with special needs at this campus have access to the specialized technology they would require to participate in online state testing?

( ) yes
( ) no

25. If the answer to question 24 is "no," what specialized technology would be needed at this campus for those students to participate in online state testing? Please check all that apply.

    [ ] screen readers
    [ ] screen magnifiers
    [ ] touch screens
    [ ] mouse assistive devices
    [ ] keyboard assistive devices
    [ ] color overlays
    [ ] other: _____

Personnel/Staffing/Training:

(The following questions may require participation from district or campus assessment and technology coordinators.)

26. How many hours per week does this campus typically have an on-site technology coordinator available?

    ( ) technology coordinators are not typically on-site at this campus
    ( ) 0–8 hours
    ( ) 9–16 hours
    ( ) 17–24 hours
    ( ) 25–32 hours
    ( ) 33–40 hours

For questions 27 through 30, please refer to the sample testing schedule when answering.

27. To move to all-online state testing, how much training would campus coordinators at this campus need annually?

    ( ) 0–2 hours
    ( ) 3–4 hours
    ( ) 5–8 hours
    ( ) 9+ hours

28. To move to all-online state testing, how much training would test administrators who are teachers at this campus need annually?

    ( ) 0–2 hours
    ( ) 3–4 hours
    ( ) 5–8 hours
    ( ) 9+ hours

29. To move to all-online state testing, how much training would test administrators who are non-teaching personnel at this campus need annually?

    ( ) 0–2 hours
    ( ) 3–4 hours
    ( ) 5–8 hours
    ( ) 9+ hours

30. To move to all-online state testing, how much training would students at this campus need annually?

    ( ) 0–2 hours
    ( ) 3–4 hours
    ( ) 5–8 hours
    ( ) 9+ hours

31. Do you anticipate any specific population of students having particular difficulty with online state testing?

    ( ) yes
    ( ) no

32. If the answer to question 31 is "yes," please identify the group(s) you think will have particular difficulty with online state testing and explain why. _____

Perception of Online State Testing:

(The following questions may require participation from district or campus assessment and technology coordinators.)

33. What do you perceive as the most important advantages of online state testing for this campus? Please check all that apply.

    [ ] increased student motivation
    [ ] reduction in the amount of printed materials handled by district and campus staff
    [ ] overall decrease in staffing needs for training and administration
    [ ] increased security of test content
    [ ] rapid reporting
    [ ] potential cost savings
    [ ] reduced handling of secure paper materials
    [ ] no perceived advantages
    [ ] other: _____

34. What do you perceive as this campus's greatest challenges in the area of online state testing? Please check all that apply.

    [ ] some students may have a difficult time taking the tests
    [ ] increased technology burden on the district and campuses
    [ ] not enough computers
    [ ] not enough bandwidth
    [ ] potential cost increases for campus
    [ ] overall increase in staffing needs for training and administration
    [ ] provisions for backups/alternatives in the event of system failure
    [ ] coordination of testing and technical support personnel
    [ ] no perceived challenges
    [ ] other: _____

35. Overall, do you perceive that the advantages of online state testing will outweigh the challenges for this campus?

    ( ) yes
    ( ) no

36. What comments or suggestions would this campus like to share with regard to moving to a 100% online state testing program? Please write your response in the space provided below.

APPENDIX 5. SUMMARY OF SURVEY RESPONSES

Detailed summaries of the responses given by districts and campuses are provided in this appendix.

District Level Results

Table 5.1* Role of Survey Respondents

Survey Was Completed by	Districts	
	Number	Percentage**
Superintendent	328	27.0%
Central office representative	250	20.6%
District technology coordinator	823	67.8%
District testing coordinator	691	56.9%
Other***	220	18.1%

*District Question 1: Who is completing the survey for this district? Please check all that apply.
**Percentage out of 1214 responses
*** Responses to other provided title or name of individual completing the survey

Table 5.2* Distribution of Internet Bandwidth to Campuses

District Provides Internet Bandwidth to Campuses by:	Districts	
	Number	Percentage
Central district-wide solution	1,006	83.0%
Coordinates individual campus solutions	66	5.4%
Both centralized and individual campus solutions	105	8.6%
Not involved with providing Internet bandwidth to campuses	37	3.0%
Total	1,214	100.0%

*District Question 2: How does this district provide Internet bandwidth to campuses?

Table 5.3* District Report of Internet Congestion during Past Year

Has District Experienced Internet Bandwidth Congestion During Past Year?	Districts	
	Number	Percentage
Once per day or more	465	38.3%
Once per week	233	19.3%
Once per month	139	11.4%
Less than once per month	139	11.4%
No	238	19.6%
Total	1,214	100.0%

*District Question 3: Has this district experienced Internet bandwidth congestion (slow Internet performance) during school hours in the past year?

Table 5.4* Campuses Provided Internet Access by District

District Enrollment Category	For Districts That Provide Campuses with Internet Access, the Number of Campuses Served			Districts
	Sum	Mean	Median	Number
Less than 500	954	2.32	1.0	412
500–999	736	3.1	3.0	236
1,000–1,599	511	3.9	4.0	130
1,600–2,999	644	5.2	5.0	125
3,000–4,999	553	6.7	7.0	82
5,000–9,999	828	11.0	11.0	75
10,000–24,999	1,159	25.2	24.0	46
25,000–49,999	1,172	41.8	40.0	28
50,000 or more	1,660	110.6	76.0	15
Other—not designated	68	4.0	1.0	17
Total	8,285	7.1	3.0	1,166

*District Question 4: If this district provides campuses with Internet access, how many campuses are served by this solution?

Table 5.5* District-Supported Security Software

Security Systems	Districts	
	Number	Percentage
Norton Internet security	170	14.1
MacAfee Internet security	104	8.6
Microsoft networking	224	18.6
Bloxx	3	<1%
Filters not listed here	598	49.6
None	113	9.4
Other**	513	42.5

*District Question 5: Please indicate all of the types of bandwidth monitoring and/or limiting technology that this district uses, or plans to use.
**Different notations for the following solutions appeared very often: Light Speed Systems, Symantec Security System, and Sonic Wall Security. In addition, many other solutions were listed. A total of 8 districts checked "none" and a type of bandwidth. These districts were not included in the analysis of this item.

Table 5.6* District-Supported Content Filters

District Supports Content Filters Beyond URL and E-Mail	Campuses	
	Number	Percentage
Yes	666	44.8%
No	540	55.2%
Total	1206	100.0%

*District Question 6: Does this district use content filters that go beyond URL and e-mail filtering?

District Question 7*: If the answer to Question 6 is yes, please identify which filters.

Nearly 700 responses to this question were very similar to the security system listings offered for District Question 5. Different notations for Light Speed Systems, Symantec Security System, Sonic Wall Security, and a vast number of similar listings (e.g., 8e6 Vericept, 8e6 technologies r3000, 8e6 box does protocol filtering, 8e6 Technologies) appear across this very long list.

Table 5.7.* District-Provided Campus File Servers

District Provides File Servers to Campuses	Districts	
	Number	Percentage
All campuses have their own file servers	439	36.4%
Some campuses have their own file servers	121	10.0%
Campuses have file servers centrally located at the district	487	40.4%
None of the campuses have their own file servers	159	13.2%
Total	1,206	100.0%

*District Question 8: To what extent are this district's campuses equipped with on-site file servers?

Table 5.8* District Use of Web-Caching Software

Capacity	Districts	
	Number	Percentage
Less than 10 GB	116	9.6%
10 GB to less than 50 GB	104	8.6%
50 GB to less than 100 GB	45	3.7%
100 GB or greater	46	3.8%
District does not use Web-caching software	895	74.2%
Total	1,206	100.0%

*District Question 9: If this district uses Web-caching software, what is its capacity?

Table 5.9.* Number of Computers in Portable Computing Labs

District Enrollment Category	Computers in Portable Computing Labs That Are Available as Shared Resources That Could Be Used for Online State Testing			Districts
	Sum	Mean	Median	Number
Less than 500	7,665	37.0	24.0	207
500–999	6,949	55.1	40.0	126
1,000–1,599	8,959	119.5	70.0	75
1,600–2,999	5,927	92.6	60.0	64
3,000–4,999	3,290	94.0	50.0	35
5,000–9,999	8,584	232.0	176.0	37
10,000–24,999	14,267	594.4	325.0	24
25,000–49,999	31,557	2629.8	1040.0	12
50,000 or more	9,013	1502.0	1250.0	6
Other—not designated	327	40.9	33.0	8
Total	96,538	462.5	40.0	594

*District Question 10: What is the total number of computers in portable computing labs, such as Computers On Wheels (COWS), that are available as shared resources across multiple campuses and that could be used for online state testing?

NOTE: A total of 620 districts entered a zero value for Item 10.

Table 5.10a* Online Testing Costs

Amount Dedicated to:	**Online Testing Costs** Spent for the 2007–2008 Fiscal Year		
	Sum	Mean	Median
Purchases that will add **new** hardware	$9,865,901	$83,609	$11,351
Replacement of existing hardware	$7,951,105	$75,010	$10,000
Maintenance of existing hardware	$1,465,566	$13,570	$2,750
Personnel and human resources	$3,654,944	$25,922	$5,400
Software	$970,661	$13,671	$3,034
Temporary staffing	$431,690	$12,334	$3,500
Other	$1,818,850	$82,675	$3,550
Total	$26,158,717	$1,11,789	$20,000

*District Question 11: Approximately what amount of this district's annual technology budget was spent last year on online testing costs? NOTE: Please ensure the total amount matches the district's actual technology spending for the 2007–2008 fiscal year.

NOTE: Districts that entered "0" were not included in the calculation of the mean and median.

Table 5.10b* Total Technology Costs

Amount Dedicated to:	**Total Technology Costs** Spent for the 2007–2008 Fiscal Year		
	Sum	Mean	Median
Purchases that will add **new** hardware	$195,241,546	$253,560	$32,247
Replacement of existing hardware	$178,884,402	$230,818	$28,575
Maintenance of existing hardware	$45,742,885	$57,394	$10,000
Personnel and human resources	$199,135,053	$285,703	$77,105
Software	$70,043,295	$91,800	$15,000
Temporary staffing	$6,316,633	$39,234	$8,000
Other	$39,971,805	$159,250	$19,456
Total	$735,335,619	$763,588	$140,265

*District Question 11b: Approximately what amount of this district's annual technology budget was spent last year on total technology costs? (NOTE**:** Please ensure the total amount matches the district's actual technology spending for the 2007–2008 fiscal year.)

NOTE: Districts that entered "0" were not included in the calculation of the mean and median.

Table 5.11a* Two-Week Online Testing Window: 2011–2012

Amount Dedicated to:	Dollar Amount Needed to Support 100% Online Testing in 2011–2012 School Year		
	Sum	Mean	Median
Purchases that will add **new** hardware	$1,159,193,784	$1,379,993	$100,000
Replacement of existing hardware	$211,935,590	$274,528	$50,000
Maintenance of existing hardware	$42,037,718	$55,168	$10,000
Personnel and human resources	$119,964,330	$171,378	$52,500
Software	$64,056,151	$97,495	$12,000
Temporary staffing	$16,112,807	$47,812	$10,000
Other	$107,973,612	$650,443	$29,040
Total	$1,721,273,992	$1,838,734	$230,000

*District Question 12a: Assuming a **2-week online testing window,** what dollar amounts does this district estimate would be needed in each of the following categories to support 100% online state testing in the 2011–2012 school year?

NOTE: Districts that entered "0" were not included in the calculation of the mean and median.

Table 5.11b* Two-Week Online Testing Window: 2012–2017

Amount Dedicated to:	Dollar Amount Needed to Support 100% Online Testing from 2012 to 2017		
	Sum	Mean	Median
Purchases that will add **new** hardware	$481,230,598	$658,318	$100,000
Replacement of existing hardware	$829,272,233	$975,614	$106,250
Maintenance of existing hardware	$138,077,096	$173,901	$30,000
Personnel and human resources	$1,426,229,163	$2,040,385	$165,000
Software	$134,970,739	$206,062	$35,000
Temporary staffing	$70,507,682	$206,767	$25,000
Other	$108,693,449	$701,248	$50,000
Total	$3,188,980,960	$3,429,052	$442,269

*District Question 12b: Assuming a **2-week online testing window,** what dollar amounts does this district estimate would be needed in each of the following categories to support 100% online state testing in the 2011–2012 school year and **continuing for 5 years?**

NOTE: Districts that entered "0" were not included in the calculation of the mean and median.

Table 5.12a* Six-Week Online Testing Window: 2011–2012

Amount Dedicated to:	Dollar Amount Needed to Support 100% Online Testing in 2011–2012 School Year		
	Sum	Mean	Median
Purchases that will add new hardware	$375,674,643	$485,368	$60,000
Replacement of existing hardware	$186,733,499	$42,920	$256,855
Maintenance of existing hardware	$33,346,159	$45,369	$10,000
Personnel and human resources	$101,822,044	$152,886	$50,000
Software	$41,169,808	$67,491	$11,625
Temporary staffing	$17,363,645	$55,475	$10,000
Other	$56,247,204	$372,498	$18,029

*District Question 13a: Assuming a **6-week online testing window,** what dollar amounts does this district estimate would be needed in each of the following categories to support 100% online state testing in the **2011–2012 school year?**

NOTE: Districts that entered "0" were not included in the calculation of the mean and median.

Table 5.12b* Six-Week Online Testing Window: 2012–2017

Amount Dedicated to:	Dollar Amount Needed to Support 100% Online Testing from 2012 to 2017		
	Sum	Mean	Median
Purchases that will add **new** hardware	$322,566,565	$472,279	$77,200
Replacement of existing hardware	$597,479,378	$741,290	$100,000
Maintenance of existing hardware	$105,095,088	$138,283	$30,000
Personnel and human resources	$381,443,075	$565,101	$175,000
Software	$112,040,470	$182,476	$30,000
Temporary staffing	$79,304,410	$250,963	$30,000
Other	$90,714,296	$625,616	$42,000

*District Question 13b: Assuming a 6-week online testing window, what dollar amounts does this district estimate would be needed in each of the following categories to support 100% online state testing in the 2011–2012 school year and continuing for 5 years?

NOTE: Districts that entered "0" were not included in the calculation of the mean and median.

NOTE: Glenn Rose ISD reported a value of $724,665,532,867 for "purchases that will add new hardware." This value was excluded from the analysis.

District Question 14a*: Did this district obtain funding in the 2007–2008 fiscal year to support online state testing?

A total of 115 campuses responded yes to District Question 14a, indicating that they obtained funding to support online testing in the 2007–2008 fiscal year.

Table 5.13* Source of Funding for Online Testing in 2007–2008

Source of Funding:	Number of Districts within Each Percentage Category			
	1%-24%	25%-49%	50%-74%	75%-100%
Bonds	3	3	6	6
eRate	34	10	16	13
Internal district funds	24	16	12	33
State funds	30	13	8	10
TIF	2	0	0	0
State grants	13	1	1	1
Federal grants	18	5	3	0
Private/foundation grants	2	0	0	0
Campus-based organizations	2	0	0	0
Other	3	2	1	1

*District Question 14b: If yes, of the total funding this district obtained to support online state testing, please indicate the percentage that came from the following sources.

District Question 15a*: Will this district seek funding in the 2008–2009 fiscal year to support online state testing?

A total of 305 campuses responded yes to District Question 15a, indicating that they plan to seek funding to support online testing in the 2008–2009 fiscal year.

Table 5.14* Proposed Source of Funding for Online Testing in 2008–2009

Source of Funding:	Number of Districts within Each Percentage Category			
	1%-24%	25%-49%	50%-74%	75%-100%
Bonds	3	3	6	11
eRate	64	24	29	25
Internal district funds	53	40	36	52
State funds	58	34	36	30
TIF	6	3	1	1
State grants	50	25	23	12
Federal grants	58	29	15	5
Private/foundation grants	15	7	3	0
Campus-based organizations	8	0	0	0
Other	7	3	7	7

*District Question 15b: If yes, of the total funding this district seeks to support online state testing, please indicate the percentage that will come from the following sources.

Table 5.15* Grant-Seeking Activity

Response	Districts	
	Number	Percentage
Yes	396	32.8%
No	811	67.2%
Total	1,207	100.0%

*District Question 16: Does this district or its campuses actively pursue grants to help fund technology to support online state testing?

Table 5.16* District Computer Replacement Cycle

Computer Replacement Cycle:	Districts	
	Number	Percentage
Less than 3 years	19	1.6%
Every 3 years	155	12.8%
Every 4 years	215	17.8%
Every 5 years	376	31.1%
More than every 5 years	197	16.3%
None; district doesn't have a specific cycle	247	20.4%
Total	1,209	100.0%

*District Question 17: What is this district's typical computer refresh/replacement cycle?

Table 5.17* Fiscal Planning Cycle for Technology

Technology Replacement Cycle	Districts	
	Number	Percentage
Less than 1 year	91	7.5%
One year to under 2 years	393	32.5%
Two years to under 3 years	335	27.7%
More than 3 years	391	32.3%
Total	1,210	100.0%

*District Question 18: In this district, current fiscal planning for technology acquisition and replacement extends:

Table 5.18* District Disaster Recovery Plan

Do Districts Have a Disaster Recovery Plan That Covers Technology Infrastructure?	Districts	
	Number	Percentage
Yes	648	53.6%
No	560	46.4%
Total	1,208	100.0%

*District Question 19: Does this district have a disaster recovery plan that covers technology infrastructure?

Table 5.19* Computer Software and Licensing Costs

District Enrollment Category	Expenditure for Software and Licensing Over The Computer's Lifecycle		
	Sum	Mean	Median
Less than 500	$2,783,562	$8,334.0	$675.0
500–999	$2,128,469	$11,630.9	$650.0
1,000–1,599	$1,245,521	$12,331.9	$327.0
1,600–2,999	$2,971,292	$28,031.1	$327.0
3,000–4,999	$1,059,844	$15,585.9	$300.0
5,000–9,999	$4,510,011	$77,758.8	$400.0
10,000–24,999	$2,384,416	$62,747.8	$225.0
25,000–49,999	$5,100,202	$212,508.4	$230.0
50,000 or more	$10,170,603	$924,600.3	$1,346.0
Other–not designated	$82,180	$9,131.1	$500.0
Total	$32,436,100	$34,802.7	$500.0

*District Question 20: In addition to the cost of a new computer, what is this district's approximate expenditure for software purchases and licensing over the computer's lifecycle? (Please remember to consider only those computers that can be used for online state testing.)

NOTE: Districts that entered "0" were not included in the calculation of the mean and median.

Table 5.20* Full-Time Technology Personnel

Personnel	Number of full-time technology personnel			Districts	
	Sum	Mean	Median	Number	Response of Zero
District technology directors	951	1.1	1.0	843	370
District technology managers	465	2.1	1.0	218	995
Network administration specialists	805	2.1	1.0	376	837
Database administration specialists	347	2.1	1.0	168	1,045
Instructional technology specialists	368	4.6	1.0	373	845
Repair Technicians	1,909	3.9	2.0	488	725
Other	1,372	5.3	1.0	261	952

* District Question 21: What is the total number of full-time technology personnel in this district?

Table 5.21* Technology Personnel for Setup and Delivery of Online Testing

District Enrollment Category	Technology Personnel Available to Assist with Setup and Delivery of Online Testing		
	Sum	Mean	Median
Less than 500	553	4.3	2.0
500–999	482	2.2	2.0
1,000–1,599	407	3.2	3.0
1,600–2,999	497	4.1	3.0
3,000–4,999	355	4.6	4.0
5,000–9,999	524	7.2	6.0
10,000–24,999	808	17.9	16.0
25,000–49,999	674	25.9	21.0
50,000 or more	287	22.1	12.0
Other–not designated	25	2.3	2.0
Total	4,612	4.3	2.0

*District Question 22: What is the total number of technology personnel available to assist with setup and delivery of online testing?

NOTE: Districts that entered "0" were not included in the calculation of the mean and median.

Table 5.22* Assessment Staff Available to Assist 2007–2008 Online Testing

District Enrollment Category	Assessment Staff for 2007–2008 Online Testing		
	Sum	Mean	Median
Less than 500	1,220	5.4	2.0
500–999	1,214	6.7	4.0
1,000–1,599	954	9.2	4.0
1,600–2,999	1,152	11.0	5.0
3,000–4,999	1,278	18.3	10.0
5,000–9,999	2,343	33.5	9.0
10,000–24,999	1,189	27.6	19.0
25,000–49,999	1,637	63.0	4.0
50,000 or more	338	24.1	6.0
Other–not designated	7	2.3	1.0
Total	11,332	13.5	4.0

*District Question 23: What was the total number of assessment staff for the 2007–2008 online testing?

NOTE: Districts that entered "0" were not included in the calculation of the mean and median.

Table 5.23a* Temporary Staff to Support Paper-based State Tests

District Enrollment Category	Total Temporary Staff Needed to Support **Paper-Based** State Testing during 2007–2008 School Year			Districts
	Sum	Mean	Median	Number
Less than 500	1,057	5.9	4.0	179
500–999	1,099	10.2	5.0	108
1,000–1,599	688	11.9	8.0	58
1,600–2,999	932	14.3	10.0	65
3,000–4,999	913	25.4	12.0	36
5,000–9,999	961	30.0	14.0	32
10,000–24,999	1,125	48.9	32.0	23
25,000–49,999	1,121	86.2	90.0	13
50,000 or more	468	78.0	6.0	6
Other–not designated	35	5.0	5.0	7
Total	8,399	15.9	6.0	527

* Question 24a: In the 2007–2008 school year, how many temporary staff were needed to support paper-based state testing?

NOTE: A total of 686 districts entered a zero value for Item 24a.

Table 5.23b* Temporary Staff to Support Online Testing

District Enrollment Category	Total Temporary Staff Needed to Support Online State Testing during 2007–2008 School Year			Districts
	Sum	Mean	Median	Number
Less than 500	50	1.6	1.0	30
500–999	137	3.8	3.0	36
1,000–1,599	56	5.6	4.0	10
1,600–2,999	95	3.8	2.0	25
3,000–4,999	160	10.0	10.0	16
5,000–9,999	251	19.3	12.0	13
10,000–24,999	99	12.4	7.0	8
25,000–49,999	92	11.5	9.0	8
50,000 or more	94	18.8	10.0	5
Total	1034	6.8	3.0	151

District Question 24b*: In the 2007–2008 school year, how many temporary staff were needed to support online state testing?

NOTE: A total of 1062 districts entered a zero value for Item 24b.

Table 5.24a* Additional Assessment Staff Needed for Online Testing

District Enrollment Category	Additional Staff Needed to Support Online Testing in the Area of **Assessment**		
	Sum	Mean	Median
Less than 500	1,157	5.5	3.0
500–999	1,181	10.6	4.0
1,000–1,599	796	12.1	6.0
1,600–2,999	948	15.0	5.0
3,000–4,999	865	18.0	10.0
5,000–9,999	1,258	26.2	11.0
10,000–24,999	1,096	35.4	20.0
25,000–49,999	2,470	154.4	27.0
50,000 or more	217	24.1	7.0
Other–not designated	130	10.8	6.0
Total	10,118	16.5	5.0

*District Question 25a: Based on the same example schedule in questions 12 and 13, what is the estimated number of additional **assessment** staff (full-time and temporary) needed to support online testing in this district?

NOTE: Districts that entered "0" were not included in the calculation of the mean and median.

Table 5.24b* Additional Technology Staff Needed for Online Testing

District Enrollment Category	Additional Staff Needed to Support Online Testing in the Area of **Assessment**			Districts
	Sum	Mean	Median	Number
Less than 500	1,969	41.0	30.0	48
500–999	1,062	36.6	34.0	29
1,000–1,599	442	24.6	10.0	18
1,600–2,999	508	39.1	50.0	13
3,000–4,999	388	48.5	48.0	8
5,000–9,999	383	38.3	25.0	10
10,000–24,999	256	36.6	30.0	7
25,000–49,999	165	27.5	23.0	6
50,000 or more	50	50.0	50.0	1
Other–not designated	80	40.0	40.0	2
Total	5,303	37.4	30.0	142

*District Question 25b: Based on the same example schedule in questions 12 and 13, what is the estimated number of additional **technology** staff (full-time and temporary) needed to support online testing in this district?

NOTE: Districts that entered "0" were not included in the calculation of the mean and median.

Table 5.25* Personnel Needed to Administer 2007–2008 Paper Tests

Personnel	Number of Employees		Total Hours		Average Hours Per Employee
	Mean	Sum	Mean	Sum	
Technology staff	3.5	1,422	152.89	61,920	43.5
Assessment/administrative staff	11.6	10,993	831.0	789,902	71.9
Teaching staff	188.0	178,170	7,550.9	7,158,270	40.2
Other staff	34.3	16,717	875.6	427,295	25.6

*District Question 26: Assuming that all eligible students in this district tested **on paper during the 2007–2008 April primary and EOC administrations**, provide the total number of personnel and hours of work needed to administer the tests, as broken down in the following table.

NOTE: Only districts that entered (a non-zero value for) the number of employees **and** the number of hours were included in the analysis. The number of districts that reported "0" employees are as follows: Technology staff (733); Assessment/administrative staff (237); Teaching staff (249); Other staff (718).

Table 5.26* Personnel Needed to Administer Sample Administrations in a *2-Week Window*

Personnel	Number of Employees		Total Hours		Average Hours Per Employee
	Mean	Sum	Mean	Sum	
Technology staff	7.10	6,601	484.8	450,820	68.3
Assessment/administrative staff	10.8	10,094	910.3	852,028	84.4
Teaching staff	157.2	145,863	7,922.4	7,351,994	50.4
Other staff	31.9	13,243	1,427.0	592,184	44.7

*District Question 27: Assuming that all eligible students in this district test online in a 2-week window according to the sample test administrations, provide the total number of personnel and hours of work needed to administer the tests, as broken down in the following table.

NOTE: Only districts that entered (a non-zero value for) the number of employees **and** the number of hours were included in the analysis.

Table 5.27* Personnel Needed to Administer Sample Administrations in a *6-Week Window*

Personnel	Number of Employees		Total Hours		Average Hours Per Employee
	Mean	Sum	Mean	Sum	
Technology staff	5.9	5,448	752.6	690,838	126.8
Assessment/administrative staff	10.7	9,834	1,267.4	1,163,498	118.3
Teaching staff	148.3	135,551	9,081.5	8,300,496	61.2
Other staff	36.1	14,217	1,849.1	728,561	51.2

*District Question 28: Assuming that all eligible students in this district test online in a 6-week window according to the sample test administrations, provide the total number of personnel and hours of work needed to administer the tests, as broken down in the following table.

NOTE: Only districts that entered (a non-zero value for) the number of employees **and** the number of hours were included in the analysis.

Table 5.28* Professional Development Hours for Test Administrators

Administrator Training Hours	Districts	
	Number	Percentage
0–2 hours	342	28.3%
3–4 hours	301	24.9%
5–8 hours	147	12.2%
9+ hours	91	7.5%
N/A: this district didn't test online in 2007–2008	328	27.1%
Total	1,209	100.0%

*District Question 29: What was the approximate number of test administrator training hours, per person, required to administer online state testing in 2007–2008?

Table 5.29* Online Test Administrators in 2007–2008

District Enrollment Category	Test Administrators Required to Administer Online State Testing in the 2007–2008 School Year			Districts
	Sum	Mean	Median	Number
Less than 500	398	3.1	2.0	130
500–999	736	4.8	4.0	152
1,000–1,599	633	7.1	5.0	89
1,600–2,999	928	9.3	6.0	100
3,000–4,999	1,142	18.1	14.0	63
5,000–9,999	2,355	36.2	22.0	65
10,000–24,999	2,394	55.7	30.0	43
25,000–49,999	4,865	221.1	127.0	22
50,000 or more	2,721	247.3	145.0	11
Total	16,172	24.0	5.0	675

*District Question 30: What was the total number of test administrators required to administer online state testing in the 2007–2008 school year?

Table 5.30* Trainers Available for Online Testing

District Enrollment Category	Trainers **Available** in Districts to Provide Test Administrator Training for Online Testing			Districts
	Sum	Mean	Median	Number
Less than 500	485	1.8	1.0	273
500–999	418	2.4	2.0	178
1,000–1,599	505	4.6	3.0	109
1,600–2,999	327	3.1	2.0	105
3,000–4,999	333	4.8	3.0	69
5,000–9,999	481	6.8	4.0	70
10,000–24,999	552	12.3	5.0	45
25,000–49,999	626	27.2	5.0	23
50,000 or more	444	34.2	10.0	13
Other - not designated	65	4.64	2.0	14
Total	4,236	4.7	2.0	899

*District Question 31: What is the total number of trainers available in this district for providing test administrator training for online state testing?

Table 5.31* Trainers Needed for Test Administrator Training

District Enrollment Category	Trainers **Needed** in Districts to Provide Test Administrator Training for Online Testing		
	Sum	Mean	Median
Less than 500	709	2.0	2.0
500–999	673	3.4	3.0
1,000–1,599	506	4.3	4.0
1,600–2,999	572	5.1	5.0
3,000–4,999	554	8.0	7.0
5,000–9,999	891	12.5	12.0
10,000–24,999	886	20.1	18.0
25,000–49,999	1,173	47.0	40.0
50,000 or more	1,242	96.0	18.0
Other - not designated	65	3.8	2.0
Total	7,271	7.1	3.0

*District Question 32: What is the estimated number of trainers needed in this district to provide test administrator training for online testing?

NOTE: Districts that entered "0" were not included in the calculation of the mean and median.

Table 5.32* Advantages of Online Testing

Advantages	Districts	
	Number	Percentage**
Increased student motivation	355	29.6%
Reduction in amount of printed materials handled by staff	1,040	86.6%
Overall decrease in staffing needs for training and administration	225	18.7%
Increased security of test content	448	37.3%
Rapid reporting	988	82.3%
Potential cost savings	247	20.6%
Reduced handling of secure paper materials	986	82.1%
No perceived advantages	62	5.2%
Other	21	1.7%

*District Question 33: What do you perceive as the most important advantages of online testing for this district? Please check all that apply.

** A total of 10 districts checked at least one advantage of online testing and "no perceived advantages." These districts were not included in the analysis of this item. Percentages refer to the number of districts out of 1,201 that responded to item 33.

Table 5.33* Online Testing Challenges

Challenges	Districts	
	Number	Percentage**
Difficulty for students in taking the tests	766	63.7%
Increased technology burden	1,013	84.3%
Not enough computers	986	82.0%
Not enough bandwidth	672	55.9%
Potential cost increases for campuses	946	78.7%
Overall increase in staffing needs for training and administration	541	45.0%
Provisions for backups/alternatives in the event of system failure	949	79.0%
Coordination of testing and technical support personnel	766	63.7%
No perceived challenges	16	1.3%
Other	84	7.0%

*District Question 34: What do you perceive as this district's greatest challenges in the area of online testing? Please check all that apply.

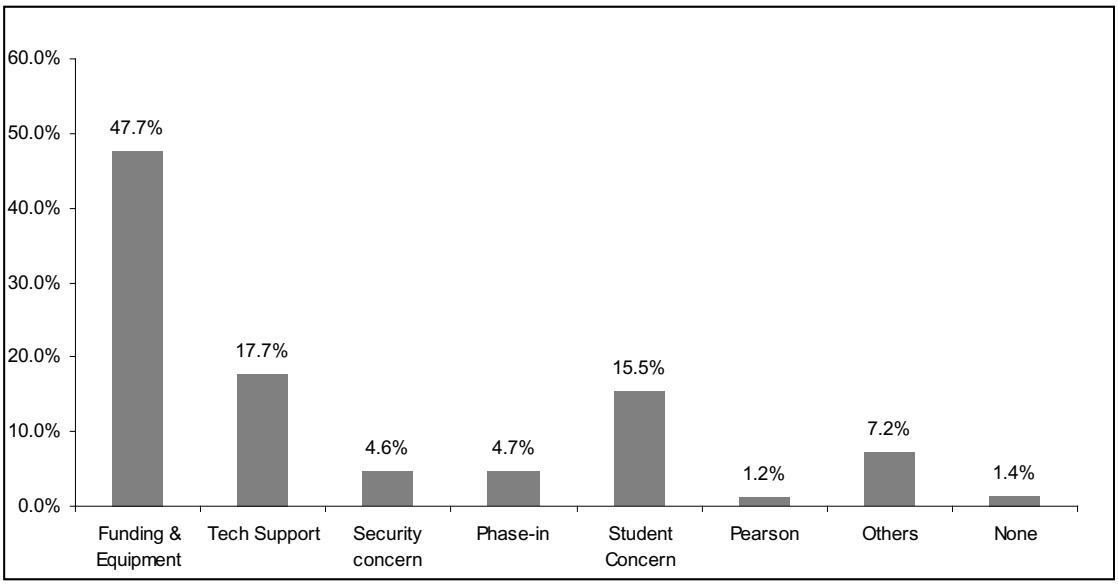
**A total of 9 districts checked at least one challenge of online testing and "no perceived challenges." These districts were not included in the analysis of this item. Percentages refer to the number of districts out of 1,202 that responded to item 34.

Table 5.34* Perceptions of Online Testing

Will The Advantages of Online State Testing Outweigh the Challenges for the District?	Districts	
	Number	Percentage
Yes	584	48.2%
No	627	51.8%
Total	1,211	100.0%

*District Question 35: Overall, do you perceive that the advantages of online state testing will outweigh the challenges for this district?

Table 5.37a* Concerns with Moving to a 100% Online State Testing Program



District Question 36*: What comments or suggestions would this district like to share with regard to moving the state to an all-online state testing program?

NOTE: There were 600 district technology coordinators and district testing coordinators who submitted a response to this question. This number represents about half of the total number of surveys completed. A coding process was undertaken for the purpose of identifying the occurrence of the variables in the comments and suggestions.

Campus Level Results

Table 5.36* Role of Survey Respondents

Survey Was Completed by	Campuses	
	Number	Percentage**
District Technology Coordinator	4,677	57.4%
District Testing Coordinator	3,931	48.3%
Campus Technology Coordinator	1,610	19.7%
Campus Testing Coordinator	1,554	19.1%
Other	2,526	31.0%

*Campus Question 1: Who is completing the survey for this campus? Please check all that apply
**Percentage is based on a total of 8143 campuses that responded to the item.

Table 5.37* Bandwidth of Main Campus Internet Connection

Available Bandwidth of Campus's Main Telecommunications/Internet Connection:	Campuses	
	Number	Percentage
Less than 1 Mb/s	192	2.3%
1 Mb/s to under 1.5 Mb/s	826	10.2%
1.5 Mb/s to under 5 Mb/s	1,564	19.2%
5 Mb/s or greater	4,521	55.6%
Campus does not have an Internet connection	65	< 1.0%
Bandwidth is unknown	967	11.8%
Total	8,135	100.0%

*Campus Question 2: What is the available bandwidth of this campus's **main** telecommunications or Internet connection?

Table 5.38* Internet Bandwidth Congestion

Has District Experienced Internet Bandwidth Congestion during Past 2 Years?	Campuses	
	Number	Percentage
Once per day or more	2,742	33.7%
Once per week	1,387	17.1%
Once per month	843	10.4%
Less than once per month	1,239	15.2%
No	1,779	21.8%
Not Applicable	135	1.6%
Total	8,125	100.0%

*Campus Question 3: Has this campus experienced Internet bandwidth congestion (slow Internet performance) during school hours in the past 2 years?

Table 5.39* Campus Bandwidth Configurations

Does the Campus Have Dedicated Internet Bandwidth, or Does It Share Bandwidth with Other Campuses/Districts?	Campuses	
	Number	Percentage
Campuses with their own dedicated bandwidth	1,341	16.6%
Campuses that share Internet bandwidth with others	6,629	81.6%
Not Applicable	153	1.8%
Total	8,123	100.0%

*Campus Question 4: Does this campus have dedicated Internet bandwidth or does it share bandwidth (e.g., with other campuses, districts, etc.)?

Table 5.40* Campus Bandwidth Use

Typical Bandwidth Use at Campuses	Campuses	
	Number	Percentage
0–24%	1,926	23.7%
25–49%	1,295	15.9%
50–74%	1,118	13.7%
75–100%	779	9.6%
Not applicable	243	2.9%
Bandwidth is not monitored at this campus	2,753	33.9%
Total	8,114	100.0%

*Campus Question 5: Which answer option accurately represents the typical bandwidth use at this campus?

Table 5.41* Campus Wireless Connections

Percentage of Computers on Campuses That Get Their Internet Access Via a Wireless Connection	Campuses	
	Number	Percentage
None	406	4.9%
0–24%	6,041	74.3%
25–49%	796	9.8%
50–74%	242	2.9%
75–100%	421	5.2%
Not sure	222	2.7%
Total	8,128	100.0%

*Campus Question 6: Which percentage of this campus's Internet access comes from a wireless connection?

Table 5.42* Campus Classrooms

District Enrollment Category	Number of Total Classrooms on Campuses			Campuses		
	Sum	Mean	Median	Number	Response of Zero	Total
Less than 500	10,872	14.6	14.0	744	6	750
500–999	14,166	18.6	18.0	763	7	770
1,000–1,599	13,697	26.7	26.0	514	5	519
1,600–2,999	19,576	30.5	31.0	642	4	646
3,000–4,999	22,337	40.9	37.0	546	8	554
5,000–9,999	37,674	43.6	39.0	865	6	871
10,000–24,999	53,358	45.9	41.0	1,163	3	1,166
25,000–49,999	62,914	49.9	41.0	1,261	6	1,267
50,000 or more	78,932	49.0	42.0	1,611	11	1,622
Other–not designated	418	22.0	18.0	19	1	20
Total	313,944	38.6	34.0	8,128	57	8,185

*Campus Question 7: How many total classrooms does this campus have?

Table 5.43* Classrooms with One or More Computers Available for Online Testing

District Enrollment Category	Number Of Classrooms with One or More Computers Available for Online Testing			Campuses		
	Sum	Mean	Median	Number	Response of Zero	Total
Less than 500	6,320	9.7	8.0	647	103	750
500–999	7,523	11.7	9.0	639	131	770
1,000–1,599	7,446	17.1	13.0	436	83	519
1,600–2,999	9,338	17.8	6.0	524	122	646
3,000–4,999	10,282	25.6	24.0	401	153	554
5,000–9,999	15,998	24.3	18.0	658	213	871
10,000–24,999	29,315	33.9	32.0	865	301	1,166
25,000–49,999	29,606	31.3	29.0	946	321	1,267
50,000 or more	34,382	28.1	22.0	1,224	398	1,622
Other–not designated	225	14.1	7.50	16	4	20
Total	150,435	23.7	18.0	6,356	1,829	8,185

*Campus Question 8: How many classrooms at this campus have one or more computers that would be available for online state testing?

NOTE: Campuses that entered "0" were not included in the calculation of the table values.

Table 5.44* Number of Classroom Computers Used for Student Instruction

District Enrollment Category	Number of Computers Used for Student Instruction			Campuses		
	Sum	Mean	Median	Number	Response Of Zero	Total
Less than 500	36,895	53.3	45.0	692	58	750
500–999	45,834	64.0	55.0	716	54	770
1,000–1,599	43,499	90.3	75.0	482	37	519
1,600–2,999	79,396	99.6	85.0	615	31	646
3,000–4,999	65,993	130.9	99.0	504	50	554
5,000–9,999	117,789	147.1	118.0	801	70	871
10,000–24,999	199,213	180.3	140.0	1,106	60	1,166
25,000–49,999	249,458	201.8	140.0	1,236	31	1,267
50,000 or more	243,835	171.1	110.0	1,425	196	1,621
Other–not designated	1,085	60.3	43.0	18	2	20
Total	1,082,997	140.2	99.0	7,595	589	8,184

*Campus Question 9: How many computers at this campus are used for student instruction?

NOTE: Campuses that entered "0" were not included in the calculation of the table values.

Table 5.45* Do Students Use Computers for Written Composition?

Do Students Use Computers for Written Composition?	Campuses	
	Number	Percentage
Yes	6,949	85.9%
No	1,137	14.1%
Total	8,086	100.0%

*Campus Question 10: Do students at this campus use computers for written composition (either during instruction or as a tool for creating essays and other written compositions)?

Table 5.46* Location of Online Testing Computers

Where Were Computers Used for Online State Testing Located?	Campuses	
	Number	Percentage
Classrooms	952	11
Computer labs	5,266	63
Library	1,100	13
Media centers	223	3
Other	877	10
Total Responses	8,418	100

*Campus Question 11: If this campus participated in online testing during the 2007–2008 school year, indicate where the computers used for online state testing were located. Please check all that apply.

Table 5.47* Classroom Computers Available for Online Testing

District Enrollment Category	Computers Located **Only** in Classrooms		
	Sum	Mean	Median
Less than 500	13,889	25.4	18.0
500–999	17,023	33.5	24.0
1,000–1,599	15,377	41.9	30.0
1,600–2,999	19,857	49.5	38.0
3,000–4,999	21,749	69.5	40.0
5,000–9,999	37,111	72.2	50.0
10,000–24,999	101,961	132.8	80.0
25,000–49,999	87,513	119.9	80.0
50,000 or more	81,414	82.0	57.0
Other–not designated	504	42.0	30.0
Total	396,398	76.9	44.0

*Campus Question 12: What is the total number of **computers located ONLY in classrooms** that could be made available for online state testing? **Note:** This does **NOT** include computers located in labs, libraries, Computers on Wheels (COWS), or other non-classroom settings.

Table 5.48* Operating Systems of Classroom Computers

Operating System	Computers Located **Only** in Classrooms	
	#	%
Win 2000	29,989	7.6
Win XP	329,379	83.1
Win Vista	7,380	1.7
Mac OS X	20,020	5.1

*Campus Question 13: Of the computers noted in question 12, indicate the approximate percentage that have the following operating systems.

NOTE: Campuses that entered "0" were not included in the calculation of the mean and median values.

Table 5.49* Age of Computers

Age of Computers	Computers Located **Only** in Classrooms	
	Number	Percentage
Less than one year old	70,268	17.7%
1 year to under 2 years old	73,142	18.5%
2 years to under 3 years old	78,910	19.9%
3 years to under 4 years old	72,884	18.4%
4 years old or greater	100,515	25.4%

*Campus Question 14: Of the computers noted in question 12, what percentage are the following ages?

Table 5.50* RAM Capacity

RAM Capacity	Computers Located **Only** in Classrooms	
	#	%
256 MB to under 512 MB	131,044	33.1%
512 MB to under 1 GB	158,701	40.0%
1 GB to 2 GB	95,639	24.1%
More than 2 GB	10,218	2.6%

*Campus Question 15: Of the computers noted in question 12, indicate what percentage have the following RAM capacities.

Table 5.51* Maximum Screen Resolution

Maximum Screen Resolution	Computers Located **Only** in Classrooms	
	#	%
800 x 600	26,885	6.8%
1024 x 768	230,861	58.2%
1280 x 1024	115,074	29.0%
More than 1280 x 1024	22,533	5.7%

*Campus Question 16: Of the computers noted in question 12, indicate what percentage have monitors with the following **maximum** screen resolution.

Table 5.52* Non-classroom Computers Available for Online Testing

District Enrollment Category	Computers Located **Outside Of** Classrooms		
	Sum	Mean	Median
Less than 500	22,216	35.6	32.0
500–999	31,116	46.9	41.0
1,000–1,599	27,859	61.5	50.0
1,600–2,999	36,022	66.8	52.0
3,000–4,999	33,416	70.5	50.0
5,000–9,999	63,682	81.6	60.0
10,000–24,999	94,545	91.7	67.0
25,000–49,999	112,988	101.3	69.0
50,000 or more	114,525	81.2	50.0
Other–not designated	489	34.9	21.0
Total	536,858	75.7	50.0

*Campus Question 17: What is the total number of **computers located OUTSIDE of classrooms (e.g., in computer labs, libraries, etc.)** that could be made available for online state testing? **Note:** This does NOT include computers located in classroom settings but does include all computers in any other setting that could be used for online state testing.

NOTE: Campuses that entered "0" were not included in the calculation of the mean and median values.

Table 5.53* Operating Systems for Non-Classroom Computers

Operating System	Computers Located **Outside of** Classrooms	
	#	%
Win 2000	28,408	5.3%
Win XP	452,663	84.3%
Win Vista	12,111	2.3%
Mac OS X	36,189	6.7%
Other	7,204	1.3%

*Campus Question 18: Of the computers noted in question 17, indicate approximate percentage that have the following operating systems.

Table 5.54* Age of Non-Classroom Computers

Age of Computers	Computers Located **Outside of** Classrooms	
	#	%
Less than one year old	81,101	15.1%
1 year to under 2 years old	134,233	25.0%
2 years to under 3 years old	117,104	21.8%
3 years to under 4 years old	101,502	18.9%
4 years old or greater	102,517	19.1%

*Campus Question 19: Of the computers noted in question 17, indicate what percentage are of the following ages.

Table 5.55* RAM Capacity of Available Computers

RAM Capacity	Computers Located **Outside of** Classrooms	
	#	%
256 MB to under 512 MB	143,021	26.6%
512 MB to under 1 GB	229,161	42.7%
1 GB to 2 GB	148,273	27.6%
More than 2 GB	15,903	2.9%

*Campus Question 20: Of the computers listed in question 17, indicate what percentage have the following RAM capacities.

Table 5.56* Maximum Screen Resolution

Resolution	Computers Located **Outside of** Classrooms	
	#	%
800 x 600	26,705	4.9%
1024 x 768	288,693	53.7%
1280 x 1024	168,901	31.5%
More than 1280 x 1024	52,059	9.7%

*Campus Question 21: Of the computers noted in question 17, indicate what percentage have the following maximum screen resolution.

Table 5.57a* Computers from Portable Computer Labs

Do The Computers (Located Outside of Classrooms) Include Any from Portable Computing Labs?	Campuses	
	Number	Percentage
Yes	2,475	30.9%
No	5,533	69.1%
Total	8,008	100.0%

*Campus Question 22: Does the answer to question 17 include any computers from portable computing labs, such as COWS? Please indicate how many if you answer "yes."

Table 5.57b*: Number of Portable Computers are Available

District Size Category	Computers Located Outside Classrooms	Computers from Portable Computing Labs		Campuses
	Sum	Sum	Percentage*	Number
Less than 500	22,195	3,962	17.9%	616
500–999	30,990	5,278	17.0%	661
1,000–1,599	27,745	5,983	21.6%	451
1,600–2,999	35,992	5,395	14.9%	538
3,000–4,999	33,405	3,771	11.3%	472
5,000–9,999	63,448	11,989	18.9%	774
10,000–24,999	94,269	19,469	20.6%	1,025
25,000–49,999	112,602	31,276	27.7%	1,096
50,000 or more	113,945	23,117	20.3%	1,404
Total	535,080	110,292	20.6%	7,037

*Campus Question 22a: From Question 22: Please indicate how many if you answer "yes."

NOTE: Forty-four campuses reported more computers from portable computing labs than the total number of computers (reported in Item 17). These campuses were excluded from the analysis, bringing the total number of computers reported in Item 17 to 535,080. This table presents the percentage of computers from (portable computing labs) out of the number of computers located outside classrooms (each district size category).

Table 5.58* Testing Window Length

Testing Window Length	Estimate of the Number of Students That Can Be Tested By Campuses			Campuses	
	Sum	Mean	Median	Number	"0"
1-day	554,826	80.9	50.0	6,852	1,333
1-week	2,323,903	347.1	240.0	6,695	1,490
2-week	4,175,940	643.4	450.0	6,490	1,695
3-week	6,288,658	1,005.1	630.0	6,257	1,928
4-week	15,883,259	2,648.5	800.0	5,997	2,188
5+-week	220,862,419	37,734.9	1,000.0	5,853	2,332

*Campus Question 23: Given the following testing window lengths, and assuming that high-stakes remain untimed, please give a reasonable estimate of the maximum number of students this campus could test within each.

Table 5.59* Equipment Access for Special Needs Students

Response	Campuses	
	Number	Percentage
Yes	4,586	57.1%
No	3,447	42.9%
Total	8,033	100.0%

*Campus Question 24: Do all students with special needs at this campus have access to the specialized technology they would require to participate in online state testing?

Table 5.60* Specialized Equipment for Online Testing

Specialized Equipment	Campuses	
	Number	Percentage*
Screen readers	2,260	65.6%
Screen magnifiers	2,317	67.2%
Touch screens	2,466	71.5%
Mouse assistive devices	2,256	65.4%
Keyboard assistive devices	2,090	60.6%
Color overlays	2,219	66.3%
Other	231	6.9%

*Campus Question 25: If the answer to question 24 is "no," what specialized technology equipment is needed at this campus for those students to participate in online state testing? Please check all that apply.

NOTE: Percentages refer to the number of campuses out of 3,447 campuses that responded "no" to Item 24. A total of 277 campuses responded "yes" to Item 24 but responded to Item 25 and identified their need for specialized technology. These campuses were not included in the analysis of item 25.

Table 5.61* Onsite Technology Coordinator Available: Hrs/Week

Number Of Hours Per Week That an Onsite Technology Coordinator Is Available	Campuses	
	Number	Percentage
0–8 hours	1,664	20.0%
9–16 hours	620	7.4%
17–24 hours	711	8.5%
25–32 hours	221	2.7%
33–40 hours	2,106	25.3%
Technology coordinators are not on-site	2,807	33.7%
Total	8,129	100.0%

*Campus Question 26: How many hours per week does this campus typically have an on-site technology coordinator available?

Table 5.62* Hours of Training Needed for Campus Coordinators

Hours of Training	Campuses	
	Number	Percentage
0–2 hours	889	10.7%
3–4 hours	2,354	28.3%
5–8 hours	2,360	28.3%
9+ hours	2,524	30.3%
Total	8,127	100.0%

*Campus Question 27: To move to all-online state testing, how much training would campus coordinators at this campus need annually?

Table 5.63* Teacher Training Needed for Test Administration

Hours Of Training	Campuses	
	Number	Percentage
0–2 hours	1,346	16.2%
3–4 hours	2,976	35.7%
5–8 hours	2,079	25.0%
9+ hours	1,726	20.7%
Total	8,127	100.0%

*Campus Question 28: To move to all-online state testing, how much training would test administrators who are teachers at this campus need annually?

Table 5.64* Non-Teaching Personnel Training Needed for Test Administration

Hours of Training	Campuses	
	Number	Percentage
0–2 hours	2,009	24.1%
3–4 hours	2,993	35.9%
5–8 hours	1,515	18.2%
9+ hours	1,611	19.3%
Total	8,128	100.0%

*Campus Question 29: To move to all- online state testing, how much training would test administrators who are non-teaching personnel at this campus need annually?

Table 5.65* Student Training Needed for Online Testing

Hours of Training	Campuses	
	Number	Percentage
0–2 hours	4,240	50.9%
3–4 hours	1,694	20.3%
5–8 hours	1,127	13.5%
9+ hours	1,067	12.8%
Total	8,128	100.0%

*Campus Question 30: To move to all- online state testing, how much training would students at this campus need annually?

Table 5.66* Anticipate Student Difficulty with Online Testing?

Response	Campuses	
	Number	Percentage
Yes	4,518	55.6%
No	3,609	44.4%
Total	8,127	100.0%

*Campus Question 31: Do you anticipate any specific population of students will have difficulty with online state testing?

Table 5.67* Group(s) That Will Have Difficulty with Online State Testing

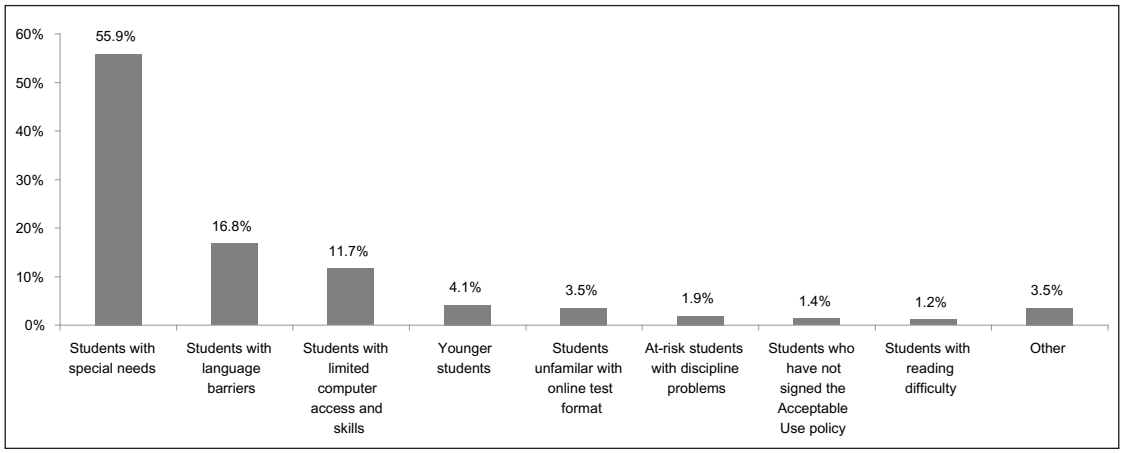


Table 5.68* Advantages of Online Testing

Advantages	Campuses	
	Number	Percentage**
Increased student motivation	2,848	35.3%
Reduction in amount of printed materials handled by staff	6,916	85.7%
Overall decrease in staffing needs for training and administration	1,412	17.5%
Increased security of test content	3,085	38.2%
Rapid reporting	6,356	78.8%
Potential cost savings	2,112	26.2%
Reduced handling of secure paper materials	6,448	79.9%
No perceived advantages	398	4.9%

*Campus Question 33: What do you perceive as the most important advantages of online state testing for this campus? Please check all that apply

**A total of 58 campuses checked at least one advantage of online testing and "no perceived advantages." These campuses were not included in the analysis of this item. Percentages refer to the number of campuses out of 8,068 campuses that responded to item 33.

Table 5.69* Challenges Facing Online Testing

Challenges	Campuses	
	Number	Percentage**
Difficulty for students in taking the tests	4,838	60.1%
Increased technology burden	6,453	80.2%
Not enough computers	6,659	82.7%
Not enough bandwidth	4,166	51.8%
Potential cost increases for campuses	4,943	61.4%
Overall increase in staffing needs for training and administration	3,652	45.4%
Provisions for backups/alternatives in the event of system failure	5,973	74.2%
Coordination of testing and technical support personnel	5,172	64.2%
No perceived challenges	116	1.4%

*Campus Question 34: What do you perceive as this campus's greatest challenges in the area of online state testing? Please check all that apply.

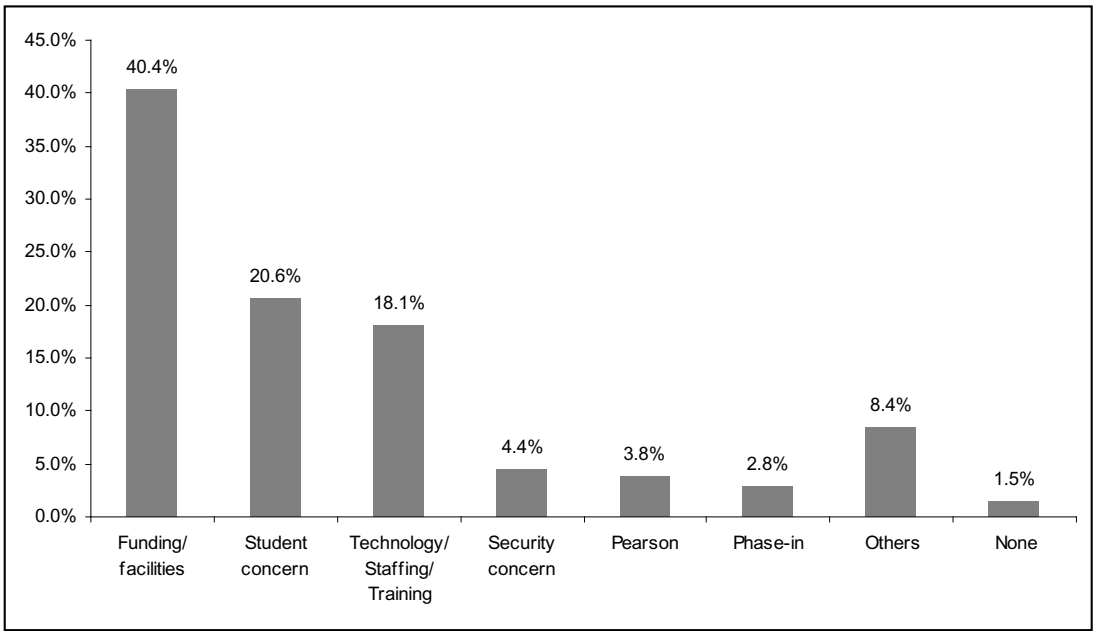
** A total of 73 campuses checked at least one challenge of online testing and "no perceived challenges." These campuses were not included in the analysis of this item. Percentages refer to the number of campuses out of 8,050 campuses that responded to item 34.

Table 5.70* Perceptions of Online Testing

Do the Advantages of Online State Testing Outweigh the Challenges?	Campuses	
	Number	Percentage
Yes	4,197	50.3%
No	3,926	47.1%
Total	8,123	100.0%

*Campus Question 35: Overall, do you perceive that the advantages of online testing will outweigh the challenges for this campus?

Table 5.71* Moving to 100% Online Testing



*Campus Question 36: What comments or suggestions would this campus like to share with regard to moving to a 100% online state testing program?),

NOTE: A total of 3,241 submitted a response to the open-ended campus question 36. Because most respondents listed more than one answer, a total of 4,293 answers were coded

APPENDIX 6. COST DETAILS FOR OPTIONS 1–4, IMPLEMENTING ONLINE TESTING

This report included four options, and their respective costs, for the State of Texas to move its assessment program to online testing.

For each option, a campus-by-campus cost analysis took place, looking at the following factors: enrollment counts per campus, computers available for online testing per campus, computers needed by a campus to meet an acceptable student-to-computer ratio per option, and the per-campus cost required to meet each option.

An electronic version of this data is available online at http://www.TexasAssessment.com/readinesscosts/ in a spreadsheet format.

Table 7.1 below represents a district-level summary of the costs of options 1–4, segmented by district type and size.

Table 6.1 Summary of Costs for Options 1-4, By District Type and Size

					Option 1		Option 2		Option 3		Option 4	
District Community Type	**Size Category (by Student Enrollment)**	**Sum of Student Enrollment**	**Sum of Computers Currently Available For Testing**	**Average Student-to-Computer Ratio**	**Sum of Computers Needed to Meet Ratio**	**Sum of Estimated Costs Needed to reach target**	**Sum of Computers Needed to Meet Ratio**	**Sum of Estimated Costs Needed to reach target**	**Sum of Computers Needed to Meet Ratio**	**Sum of Estimated Costs Needed to reach target**	**Sum of Computers Needed to Meet Ratio**	**Sum of Estimated Costs Needed to reach target**
Major Suburban	(E1) 50,000 and over	385,687	70,943	7.96	133,778	$133,778,000	42,482	$42,482,000	12,175	$12,175,000	11,416	$11,416,000
	(E2) 25,000 to 49,999	587,258	122,969	8.51	191,151	$191,151,000	58,458	$58,458,000	18,699	$18,699,000	16,535	$16,535,000
	(E3) 10,000 to 24,999	326,549	60,836	7.77	109,049	$109,049,000	31,787	$31,787,000	8,456	$8,456,000	7,837	$7,837,000
	(E4) 5,000 to 9,999	162,021	28,955	11.60	57,603	$57,603,000	18,349	$18,349,000	5,145	$5,145,000	4,172	$4,172,000
	(E5) 3,000 to 4,999	40,362	6,597	8.31	15,418	$15,418,000	4,875	$4,875,000	1,300	$1,300,000	881	$881,000
	(E6) 1,600 to 2,999	9,296	2,352	4.50	2,958	$2,958,000	728	$728,000	195	$195,000	64	$64,000
	(E7) 1,000 to 1,599	1,504	527	3.24	353	$353,000	60	$60,000	0	$0	0	$0
Major Suburban Total		1,512,677	293,179	8.55	510,310	$510,310,000	156,739	$156,739,000	45,970	$45,970,000	40,905	$40,905,000
Major Urban	(E1) 50,000 and over	828,877	117,863	12.05	288,645	$288,645,000	98,989	$98,989,000	34,439	$34,439,000	26,151	$26,151,000
	(E2) 25,000 to 49,999	44,394	6,955	126.90	17,552	$17,552,000	6,666	$6,666,000	3,554	$3,554,000	244	$244,000
Major Urban Total		873,271	124,818	16.71	306,197	$306,197,000	105,655	$105,655,000	37,993	$37,993,000	26,395	$26,395,000
Other Central City	(E2) 25,000 to 49,999	380,047	63,450	7.83	129,769	$129,769,000	41,879	$41,879,000	13,817	$13,817,000	12,283	$12,283,000
	(E3) 10,000 to 24,999	254,198	56,622	7.47	78,458	$78,458,000	23,804	$23,804,000	8,472	$8,472,000	7,936	$7,936,000
	(E4) 5,000 to 9,999	110,431	19,184	8.36	41,682	$41,682,000	14,157	$14,157,000	4,360	$4,360,000	3,844	$3,844,000
Other Central City Total		744,676	139,256	7.79	249,909	$249,909,000	79,840	$79,840,000	26,649	$26,649,000	24,063	$24,063,000

					Option 1		Option 2		Option 3		Option 4	
District Community Type	**Size Category (by Student Enrollment)**	**Sum of Student Enrollment**	**Sum of Computers Currently Available For Testing**	**Average Student-to-Computer Ratio**	**Sum of Computers Needed to Meet Ratio**	**Sum of Estimated Costs Needed to reach target**	**Sum of Computers Needed to Meet Ratio**	**Sum of Estimated Costs Needed to reach target**	**Sum of Computers Needed to Meet Ratio**	**Sum of Estimated Costs Needed to reach target**	**Sum of Computers Needed to Meet Ratio**	**Sum of Estimated Costs Needed to reach target**
Other Central City Suburb	(E3) 10,000 to 24,999	176,023	43,334	7.14	47,508	$47,508,000	13,598	$13,598,000	4,690	$4,690,000	3,911	$3,911,000
	(E4) 5,000 to 9,999	182,751	31,227	8.44	66,222	$66,222,000	21,518	$21,518,000	5,366	$5,366,000	5,383	$5,383,000
	(E5) 3,000 to 4,999	110,882	18,516	9.62	43,474	$43,474,000	15,026	$15,026,000	5,084	$5,084,000	3,633	$3,633,000
	(E6) 1,600 to 2,999	79,050	16,191	8.09	28,403	$28,403,000	8,662	$8,662,000	2,233	$2,233,000	1,547	$1,547,000
	(E7) 1,000 to 1,599	35,525	8,321	5.50	11,224	$11,224,000	2,771	$2,771,000	709	$709,000	444	$444,000
	(E8) 500 to 999	16,658	3,595	5.96	5,340	$5,340,000	1,335	$1,335,000	270	$270,000	312	$312,000
Other Central City Suburb Total		600,889	121,184	7.82	202,171	$202,171,000	62,910	$62,910,000	18,352	$18,352,000	15,230	$15,230,000
Non-metropolitan Stable	(E5) 3,000 to 4,999	46,589	6,220	9.65	18,710	$18,710,000	6,708	$6,708,000	2,147	$2,147,000	1,625	$1,625,000
	(E6) 1,600 to 2,999	122,864	26,531	7.06	43,713	$43,713,000	12,437	$12,437,000	2,992	$2,992,000	1,605	$1,605,000
	(E7) 1,000 to 1,599	104,110	27,844	5.16	30,160	$30,160,000	7,430	$7,430,000	1,585	$1,585,000	1,244	$1,244,000
	(E8) 500 to 999	60,001	16,270	4.94	16,368	$16,368,000	3,691	$3,691,000	1,007	$1,007,000	621	$621,000
Non-metropolitan Stable Total		333,564	76,865	6.10	108,951	$108,951,000	30,266	$30,266,000	7,731	$7,731,000	5,095	$5,095,000
Independent Town	(E3) 10,000 to 24,999	36,892	27,230	11.85	12,831	$12,831,000	4,799	$4,799,000	1,424	$1,424,000	1,339	$1,339,000
	(E4) 5,000 to 9,999	84,504	16,017	10.00	30,696	$30,696,000	10,598	$10,598,000	3,410	$3,410,000	2,609	$2,609,000
	(E5) 3,000 to 4,999	99,616	20,674	16.32	36,674	$36,674,000	12,520	$12,520,000	3,804	$3,804,000	2,471	$2,471,000
	(E6) 1,600 to 2,999	37,390	5,699	8.92	14,449	$14,449,000	4,993	$4,993,000	1,567	$1,567,000	777	$777,000
	(E7) 1,000 to 1,599	9,539	2,683	4.36	2,675	$2,675,000	561	$561,000	69	$69,000	21	$21,000
	(E8) 500 to 999	1,383	237	5.94	501	$501,000	145	$145,000	25	$25,000	0	$0
	(E9) Under 500	298	78	3.83	90	$90,000	17	$17,000	0	$0	0	$0
Independent Town Total		269,622	72,618	11.98	97,916	$97,916,000	33,633	$33,633,000	10,299	$10,299,000	7,217	$7,217,000

					Option 1		Option 2		Option 3		Option 4	
District Community Type	**Size Category (by Student Enrollment)**	**Sum of Student Enrollment**	**Sum of Computers Currently Available For Testing**	**Average Student-to-Computer Ratio**	**Sum of Computers Needed to Meet Ratio**	**Sum of Estimated Costs Needed to reach target**	**Sum of Computers Needed to Meet Ratio**	**Sum of Estimated Costs Needed to reach target**	**Sum of Computers Needed to Meet Ratio**	**Sum of Estimated Costs Needed to reach target**	**Sum of Computers Needed to Meet Ratio**	**Sum of Estimated Costs Needed to reach target**
Rural	(E8) 500 to 999	66,548	21,747	3.92	15,370	$15,370,000	2,780	$2,780,000	548	$548,000	332	$332,000
	(E9) Under 500	75,095	27,739	3.42	14,266	$14,266,000	2,348	$2,348,000	507	$507,000	289	$289,000
Rural Total		141,643	49,486	3.61	29,636	$29,636,000	5,128	$5,128,000	1,055	$1,055,000	621	$621,000
Charters	(E6) 1,600 to 2,999	15,370	2,678	7.01	6,164	$6,164,000	2,125	$2,125,000	651	$651,000	818	$818,000
	(E7) 1,000 to 1,599	13,226	1,898	13.90	4,917	$4,917,000	1,714	$1,714,000	666	$666,000	164	$164,000
	(E8) 500 to 999	20,726	3,459	12.13	7,055	$7,055,000	2,416	$2,416,000	815	$815,000	768	$768,000
	(E9) Under 500	32,873	6,401	12.28	12,122	$12,122,000	4,067	$4,067,000	1,485	$1,485,000	998	$998,000
Charters Total		82,195	14,436	11.45	30,258	$30,258,000	10,322	$10,322,000	3,617	$3,617,000	2,748	$2,748,000
Non-metropolitan Fast Growing	(E5) 3,000 to 4,999	7,695	1,487	5.54	2,886	$2,886,000	952	$952,000	188	$188,000	173	$173,000
	(E6) 1,600 to 2,999	2,131	273	4.13	826	$826,000	278	$278,000	71	$71,000	16	$16,000
	(E7) 1,000 to 1,599	4,027	879	5.77	1,277	$1,277,000	320	$320,000	69	$69,000	66	$66,000
	(E8) 500 to 999	7,198	2,035	4.51	1,683	$1,683,000	296	$296,000	28	$28,000	4	$4,000
	(E9) Under 500	2,106	1,040	3.89	355	$355,000	57	$57,000	8	$8,000	5	$5,000
Non-metropolitan Fast Growing Total		23,157	5,714	4.82	7,027	$7,027,000	1,903	$1,903,000	364	$364,000	264	$264,000
Other	Other	1,382	545	2.99	227	$227,000	12	$12,000	0	$0	0	$0
Other Total		1,382	545	2.99	227	$227,000	12	$12,000	0	$0	0	$0
Grand Total		4,583,076	898,101	9.14	1,542,602	$1,542,602,000	486,408	$486,408,000	152,030	$152,030,000	122,538	$122,538,000

The cover art titled ***Everyone Can Learn*** by **Rita Yeung**, from Garland High School in the Garland Independent School District, was included in the 2007-2008 Texas PTA Reflections art exhibit. The exhibit featured award-winning pieces displayed at the Texas Education Agency, the Texas Commission on the Arts, and the Legislative Budget Board from April 21 through August 29, 2008.

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