# Florida Statewide Technology Survey: Results Related to Integration and Support

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*Paper presented at the annual National Educational Computing Conference, Atlanta, June 24–27, 2007.*

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## Abstract

In response to the No Child Left Behind program, the state of Florida, Office of Educational Technology, has made major revisions to its technology survey to collect more meaningful technology integration information from schools. This research presents the background on the survey's development, the results from the administration of the 2005-06 school year (n=2,667), and provides internal consistency reliability evidence for these data. The System for Technology Accountability and Rigor (STAR) survey is organized into five sections: digital learning environment, instructional leadership, Florida digital educators, access to technology, and infrastructure and support.

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## Purpose

The purpose of this study was to assess the current status of technology in Florida's K-12 schools, as reported in the annual technology integration survey. Findings from this study can help to expand knowledge about the availability and use of technology in K-12 schools and inform policy makers and state/district level administrators on how to plan for the integration of technology. In addition, the results provide guidance on professional development for teachers, partnerships with community members, and support systems for educators.

## Perspectives

In addition to state funding for technology, the state of Florida was allocated over $88 million dollars of federal funds through the No Child Left Behind program over the past three years (State Educational Technology Directors Association, 2006). It is imperative that Florida conduct comprehensive, systematic investigations regarding the status of technology integration in its schools.

One source of technology data about states comes from the annual *Technology Counts* research conducted for *Education Week* by the Editorial Projects in Education Research Center. To obtain the data, the Editorial Projects team surveys the chief state technology officers in all 50 states. Through these surveys, the research "explores the inroads states have made in developing computerized systems for managing student and teacher data and in using that information to support instructional decision-making" (Editorial Projects in Education Research Center, 2006, p. 1). In 2006, Florida received grades of B for Access to technology; B- for Use of technology; and B- for Capacity to use technology.

In order to obtain timely, relevant, accurate data for federal reporting requirements, as well as national surveys (such as Technology Counts), states, such as Florida, must acquire technology information from individual schools. For more than twenty years, the Florida Department of Education, Office of Educational Technology, has collected information from the Florida school districts about their access to technology. Historically, the survey focused on "counting the boxes" – reporting how many computers were available in each school and the age/type of each computer. In response to the No Child Left Behind (NCLB) legislation, the Florida Department of Education revised its annual technology survey in 2002 to provide more meaningful information about technology integration and capacity in Florida's schools. The result of those modifications culminated in the System for Technology Accountability and Rigor (STAR) survey (Florida Department of Education, 2006).

## Method

When educational technology leaders in Florida expressed a need to modify the technology survey, content experts from across the state were assembled to define key elements. Using a model from Texas as a starting point, strands and categories were identified and discussed. In 2002, the STAR survey was piloted throughout Florida. Subsequent revisions, based upon state standards and the pilot study, resulted in the current survey, which contains 78 items and is organized into five sections: digital learning environment, instructional leadership, Florida digital educators, access to technology, and infrastructure and support.

The STAR survey has been administered over the last three years with all public schools in Florida. Each year, the survey is administered in the fall and school districts are provided a nine-week window to have all schools within the district complete the survey and verify the data at the district level. STAR is completed by a designated principal and technology specialist at

each school. In the 2005-06 school year, 2,667 respondents in elementary, middle/junior, high, and combination schools completed the survey – a response rate of 97%.

*System for Technology Accountability and Rigor (STAR) Technology Resource Survey*

The five sections on the STAR survey are designed to collect a variety of information. Each section (except instructional leadership, which is filled out by principals only) has items to be filled out by both the principal and the designated technology specialists. The topic of each section is as follows: the digital learning environment section primarily addresses the accessibility and use of technology for teaching and learning; the instructional leadership section addresses elements related to a school's technology planning and technology funding; the Florida digital educators section is comprised of items surrounding professional development; the access to technology section is principally concerned with student, teacher, and community access to computing resources; and the infrastructure and support section of the survey highlights the technical and instructional support structures in schools and the quality of service provided.

The items on the survey include radio button responses (polytomous); check boxes that allowed the participant to select all that applied (dichotomous); and open-ended responses that usually involved reporting a numeric quantity. To demonstrate the internal consistency reliability for the instrument, Cronbach alphas are provided for each section with polytomous items, and the KR-20 is provided for dichotomous items. Because some items permit multiple responses for a single item, the reliability analyses use the descriptors rather than a single response for an item. Subsequently, $k$ is defined as the number of descriptors or variables associated with a type item in a section. The five sections of the survey varied in internal consistency reliability as shown in Table 1. The internal consistency reliability measures for the digital learning environment are acceptable at $\alpha = .839$ for the polytomous items ($k$=24). The internal consistency reliability for

the instructional leadership section is low for the polytomously stated items (*k*=15) at α = .178; however, the measures are much higher for the dichotomous items (*k*=104) items at KR-20 = .826 in this section. The Florida digital educators section's dichotomously stated items (k=10) are less than desirable at KR-20 = .366. The access to technology section demonstrates reasonable internal consistency reliability at α = .749 for the polytomous items (k=44), and KR-20 = .637 for the dichotomous items (k=50). Finally, the infrastructure and support section's internal consistency reliability measures for both polytomous (k=25) at α = .313 and dichotomous (k=29) at KR-20 = .508 lack satisfactory internal structures.

*Table 1. Internal consistency reliability by section and metric type.*

| Survey sections | Dichotomous (KR-20) | Polytomous (Cronbach) |
|---|---|---|
| Digital learning environment | n/a | .839 |
| Instructional leadership | .178 | .826 |
| Florida digital educators | .366 | n/a |
| Access to technology | .637 | .749 |
| Infrastructure and support | .508 | .313 |

To ensure internal consistency reliability for the open-ended responses, the state data collection procedures implements "flags" on the web-based instrument (JavaScript warnings for outlandish values) and back-end manual procedures in which the open-ended responses are screened for outliers. Upon identification of an outlier, state personnel contact school personnel to confirm the response prior to final submission.

*Data Analysis*

Prior to analyzing the data, a validation report was conducted on the integrity of the web-based reporting tool. The Structured Query Language (SQL) used to access the response data from the database were analyzed for accuracy. After the researchers examined the records for county level analysis and school level analysis, they concluded that the reporting utility produced

valid records. In addition, the SQL statements appeared to provide the correct grouping information: elementary, middle/junior, high, and combination classifications. The researchers concluded that the reporting software for the STAR online reporting utility provided reliable and accurate information.

Descriptive analyses of the data then took place, including the creation of many practical visuals (e.g., bar and pie charts) for ease of interpretability. A major goal of the research was to create a synopsis of the data (in the form of a formal report) that could be used by educators at the school and district levels to inform them on the technology status of the schools. This report is included as an Appendix to this manuscript.

In addition, the data from the STAR survey are currently being analyzed using various multi-level modeling statistical techniques to identify trends in technology integration, technology funding and planning, and the impact of various technology integration measures on school level reading and mathematics achievement, as measured by the Florida Comprehensive Assessment Test (FCAT).

# References

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State Educational Technology Directors Association. (2006). *National Trends: Enhancing Education through Technology, No Child Left Behind, Title II D, Year Three in Review*. Retrieved July 30, 2006 from http://www.setda.org/resources/SETDA%20Nat%27l%20Trends%20Final%202006%2E pdf.

Florida Department of Education (2006). *System for Technology Accountability and Rigor (STAR) Technology Resource*. Retrieved July 14, 2006, from http://www.starsurvey.org/index.php

# Florida STAR Survey Results Fall 2005 Overview

Office of Instructional Technology
Florida Department of Education

In response to the No Child Left Behind (NCLB): Enhancing Education Through Technology (EETT) Act, the FLDOE Office of Instructional Technology significantly revised its annual technology survey to provide more meaningful information about technology integration and capacity in Florida schools. For the Fall 2005 administration of the instrument, additional survey items were added to support districts in identification of their needs. Information provided by the survey is used to monitor goal achievement associated with the EETT program and to inform those interested in how technology is impacting instruction within Florida schools.

Results presented here are from the Fall 2005 administration of the STAR (System for Technology Accountability and Rigor) Survey. This analyses includes only elementary, middle, high, and combination schools (N=2658).

# Instructional Leadership

## Technology Planning

Schools indicated that the following attributes characterize their technology plan or technology component of SIP (see Figure 1):

- Is aligned with the district technology plan (87%)
- Reflects data from STAR Profile (44%)
- Reflects the goals of the Enhancing Education Through Technology Act (EETT, NCLB) (42%)
- Was influenced by the Florida STAR Chart (27%)

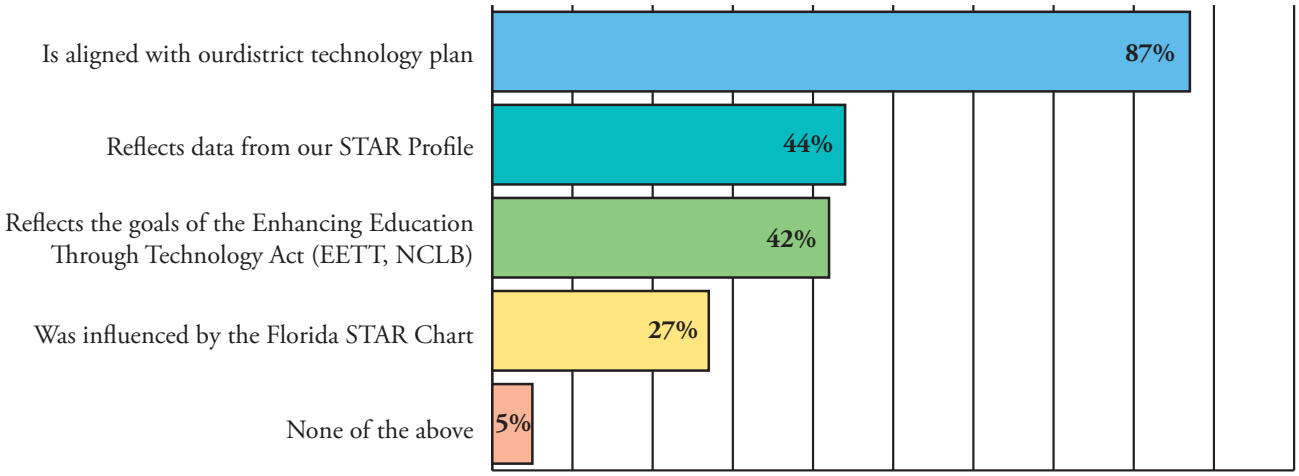


*Figure 1. Characteristics of school technology plans.*

Fifty-four percent of the schools indicated their technology plan has been approved by a School Advisory Council, and 73% report that their technology plan is revised as part of the School Improvement Plan. Most schools (85%) revise their technology plans annually. However, approximately 8% have no set revision policy.

The primary focus of school technology plans most commonly reported was either providing technology access and skills (46%), or integrating technology into subject area instruction (45%) as depicted in Figure 2.

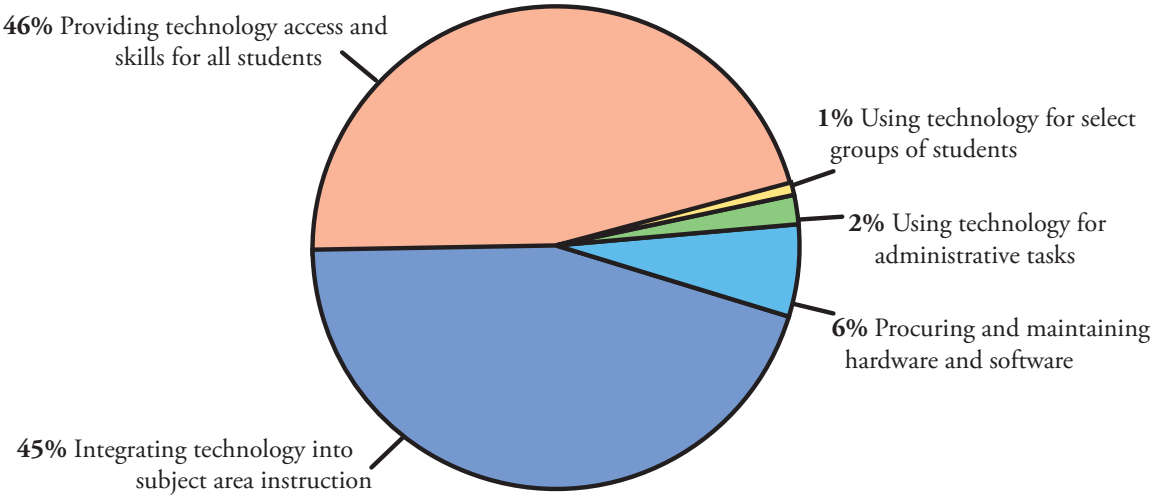


*Figure 2. The primary focus of school technology plans.*

Active participants in the technology planning process most commonly included administrators, teachers, and technology specialists. Approximately 50% of the schools include parents and district technology leaders in the planning process (see Figure 3).

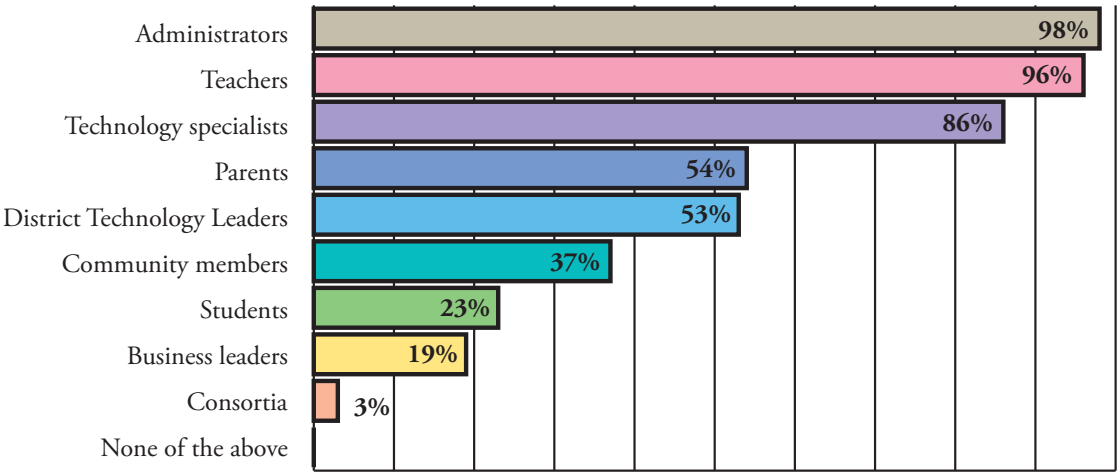


*Figure 3. Active participants in the technology planning processes.*

More than 50% of the schools reported that their technology plan or technology component of School Improvement Plan (SIP) includes the following:

- Promote the integration of technology into the curriculum to improve student achievement (92%)
- Provide research-based professional development (63%)
- Equitable access for all students to digital technology (56%)
- Parental and community involvement (55%)
- Technology Resource Survey data reporting and analysis to facilitate needs assessment and goal setting (52%)
- Strategies for technology acquisition (51%)

Sixty-six percent of the schools reported that they have students who need assistive technology. Many schools address assistive technology issues at the district level (42%). At the school level, 28% of the technology plans insure that all students have access to appropriate assistive technology, while 20% do not include provisions for assistive technology.

## Technology Funding

Only 8% of the schools reported technology funding (for hardware and software) that was adequate to maintain their current level and make all purchases necessary for desired growth (see Figures 4 and 5).

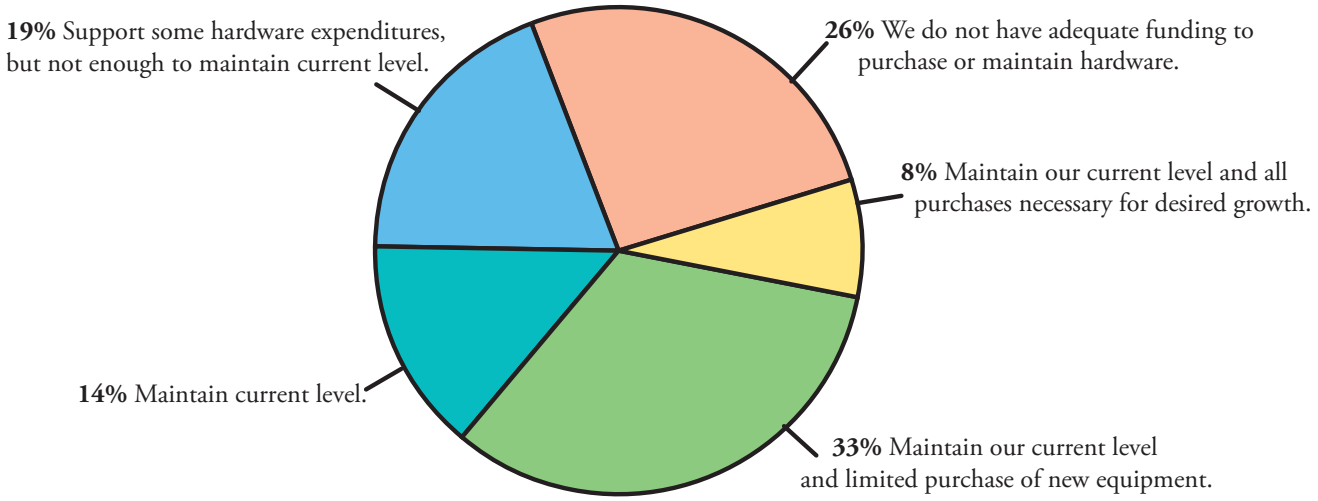


*Figure 4. Adequacy of funding for hardware and infrastructure.*

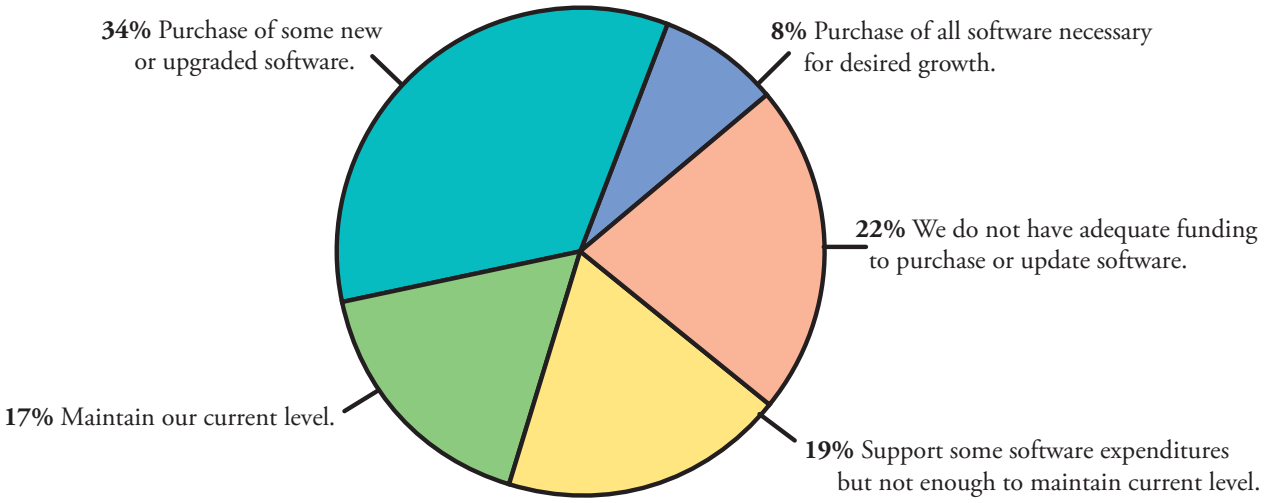


*Figure 5. Adequacy of funding for software.*

The most common additional source for technology funding was PTA/ PTO (or other school organizations), followed by donations (see Figure 6).

Other funding sources for technology included School Improvement funds, Title I, instructional materials, and profits from school ventures (such as cell towers and after-school care).

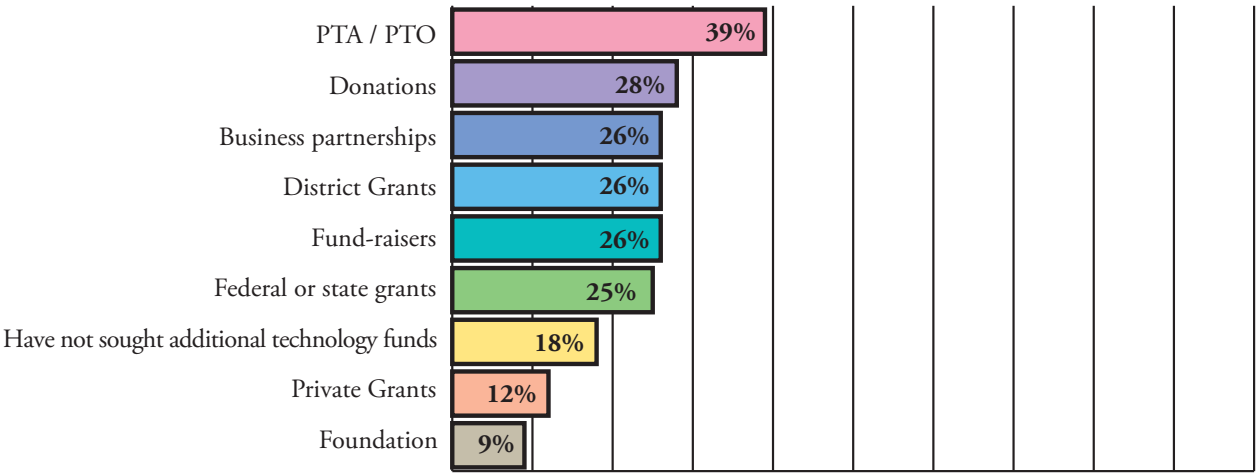


*Figure 6. School funds allocated for the support of technology.*

# Infrastructure Support

## Technology Support

Most schools (80%) indicated that the majority of their technical and instructional support was school-based. Some schools have dedicated technical support personnel (34%), while other schools are supported by a faculty member with other responsibilities (34%). These technical support personnel are responsible for the following activities:

- Troubleshooting very basic hardware/software problems (91%)
- Maintaining hardware and software (86%)
- Troubleshooting intermediate–advanced hardware/software problems (83%)
- Serving as network administrator (76%)
- Managing web production (54%)

Almost half of the schools indicated that their response time for technical support is 8 hours or less (see Figure 7). However, 25% of schools report response times greater than 24 hours.


*Figure 7. Response time for technical support.*

The school-based instructional technology specialist is often a faculty member with other responsibilities (34%). Only 21% of the schools have dedicated instructional support personnel. These instructional technology specialists provide the following types of services:

- Technology skill training for teachers (84%)
- Technology support to administrators (83%)
- Guidance for teachers in directing student use of technology in class (75%)
- Guidance for teachers in using technology to prepare and deliver lessons (75%)
- Technology integration modeling (52%)

# Access to Technology

## Student Technology Access

Approximately 83% of computers available for student use are "modern" (i.e., Internet and multimedia capable and purchased within the last 3 years). The majority of modern computers for student use are located in classrooms, followed by computer labs serving general education (see Figure 8).

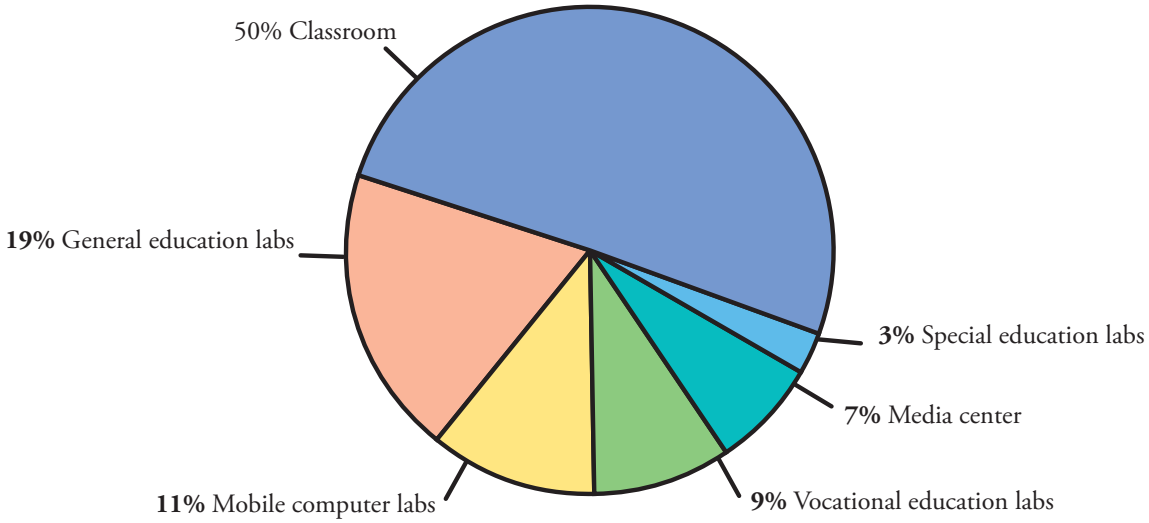


*Figure 8. Locations of modern computers for student use.*

Few schools replace student computers every three years or less; however, 45% of the schools do not have a student computer replacement policy (see Figure 9).

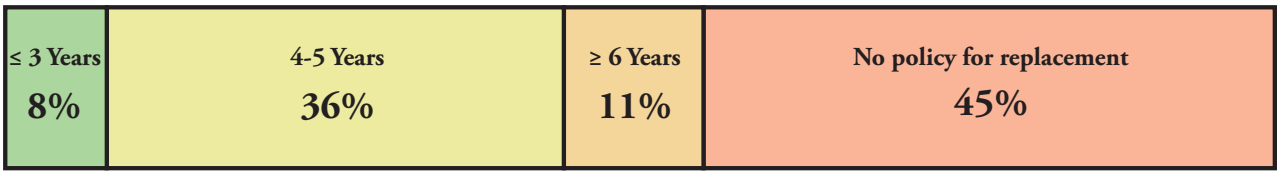


*Figure 9. Replacement policy for student computers.*

Computers are available for on-site, after school use for all students in 25% of schools. They are available for specific after-school programs and activities in 69% of schools. Some schools (27%) permit students to check out digital devices (e.g. scanners, probes, and cameras) for home use. In most cases, this is by special arrangement only. A small portion of schools (11%) have laptops that students are allowed to take home.

## Teacher Technology Access

Most teacher workstations are modern computers (74%). More than one third of these are laptops or tablets (37%). Almost all schools (96%) allow teachers to check out some digital devices for off-campus use.

Almost 50% of the schools replace teacher computers every five years or less, although 42% of the schools do not have a replacement policy for teacher computers (see Figure 10).

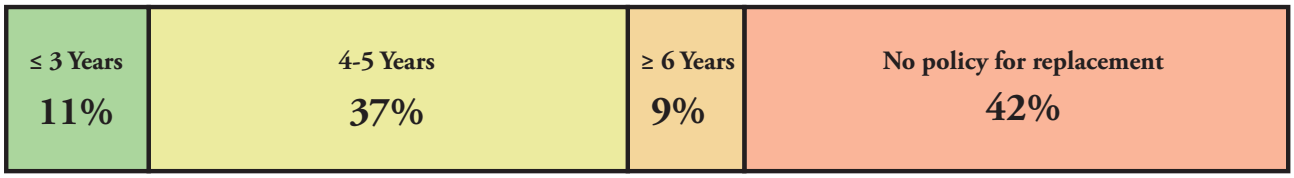


*Figure 10. Replacement policy for teacher computers.*

## Community Technology Access

Schools indicated using the following tools to share information with the local community:

- Print media (97%)
- School website (92%)
- Email (79%)
- Classroom websites (59%)
- Voice bulletins/voice mail (39%)
- PTO/PTA website (21%)
- Telephone activity hotline (21%)
- Television broadcasting (16%)
- Telephone homework hotline (14%)
- Radio broadcasting (10%)

Eighty-eight percent of the schools also report that they are making some effort to increase technology awareness in the community. For example, 40% of the schools allow parents to access technology at the school; 20% have options for community access, while 40% allow no outside access to school technology. Most schools do not include parents or the community in their technology training (60%).

# Digital Learning Environment

## Technology in Instructional Areas

The three most available digital devices reported by schools were VCR's, graphing calculators, and computer projection devices. Of the schools that reported they have Internet access, 99% also reported that the access is high-speed.

## Software Availability

Schools reported having the following application software on more than half of their student computers: word processing, spreadsheet, presentation software, and graphics programs. The majority of student computers also had access to instructional and reference materials such as FCAT Explorer and other test prep tools, encyclopedia and information databases, and content specific instruction.

## Student Use of Technology

Schools indicated that the primary way in which students use technology in their class work was for testing and practicing for skill mastery in core curriculum areas, followed by researching and presenting by individual students on a variety of topics in several subject areas (see Figure 11).

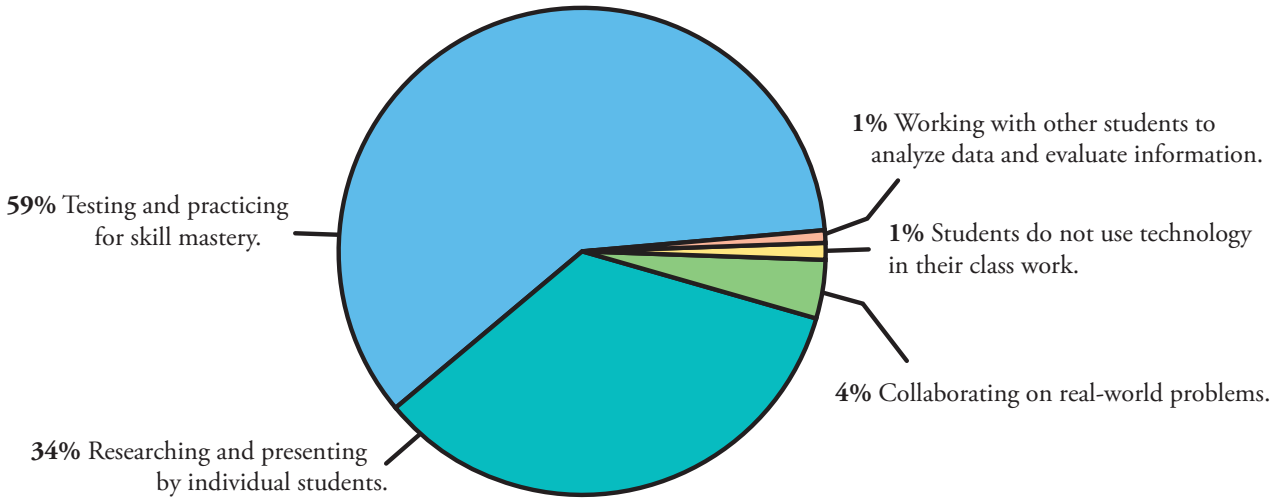


*Figure 11. Primary way students use technology in their class work.*

Regarding frequency of use, the schools reported that over 50% of their students use drill and practice software, integrated learning systems, electronic research information sources, and tool-based software several times per week (see Figure 12). Multimedia, presentation software, and simulations were less frequently used by the students.

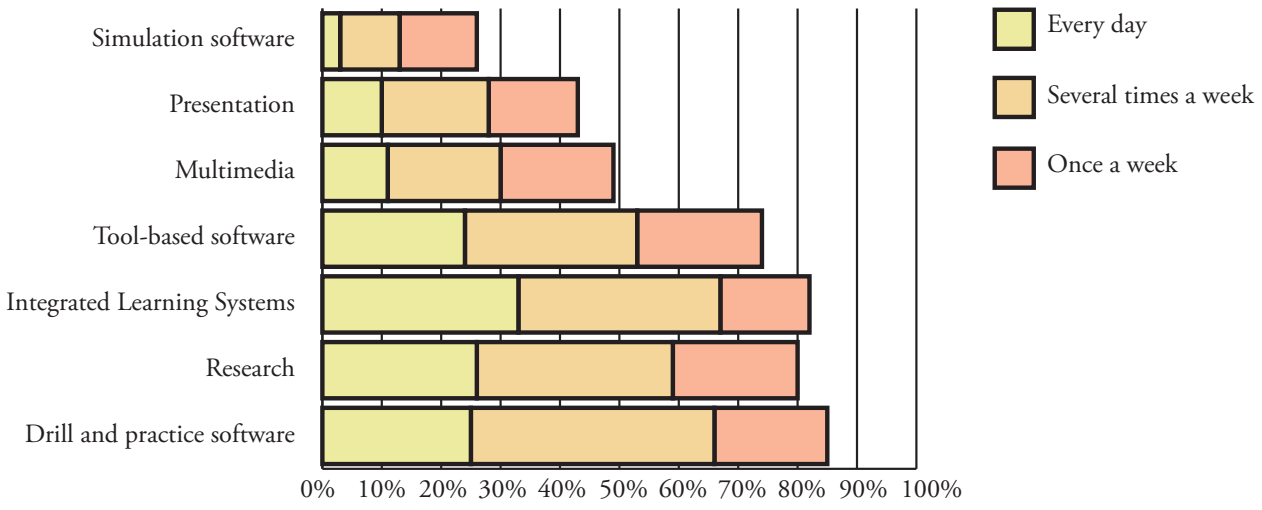


*Figure 12. Percent of students using software types at least once per week.*

Observations by teachers is the most frequently used method of evaluating student achievement of technology literacy, followed by performance assessments, objective assessments, surveys, and self-assessments (see Figure 13).

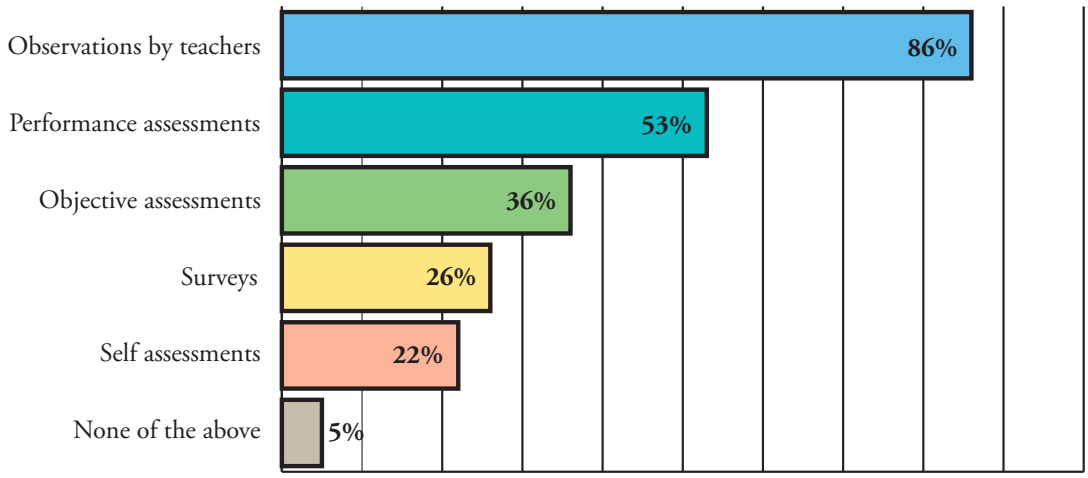


*Figure 13. Method for monitoring student achievement of technology standards.*

## Teacher Technology Use

Schools reported that the majority of their teachers regularly use technology for the following tasks: administrative tasks (lesson plans, grade book, reports, and attendance), email to other school or district staff, analysis of student assessment information, and research. Less frequent use was reported for desktop video production, video conferencing, and web page publishing.

When assigning projects using technology tools, the teachers' most common approach was to specify the technology tool that the students could use. The second most common approach involved the teacher recommending a variety of tools that could be used (see Figure 14).

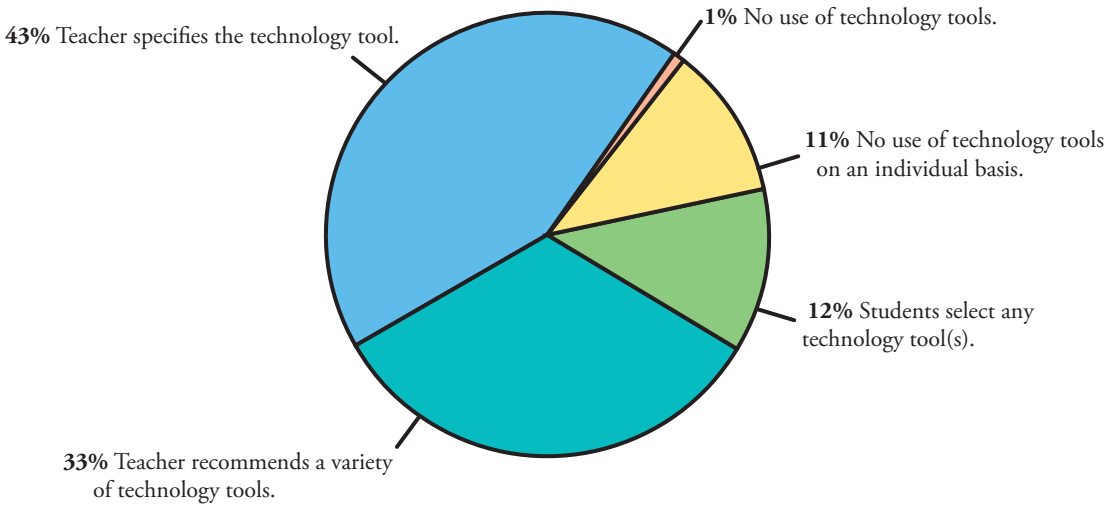


*Figure 14. Most common approach when assigning projects using technology tools.*

## Administrator Support of Technology Use

Nearly all principals reported that they use technology on a daily basis for administrative tasks (97%) and email to other school or district staff (97%). The majority of the principals also indicated that they use technology for research and analysis of student assessment information several times per week.

Principals also reported encouraging the integration of technology into the curriculum in the following ways:

- Principals encourage teachers to participate in professional development opportunities addressing technology integration (97%)
- Principals participate in coaching and mentoring programs (58%)
- Principals participate in the development of learning communities (57%)
- Principals require teachers to address technology in lesson plans (37%)

## Professional Development

All districts reported offering technology-related professional development for administrators, librarians/ media specialists, and teachers. The most common technology-related training opportunities for teachers that were offered within the districts during the 2005 -2006 school year were for administrative and management applications (e.g. grade books, lesson planning, record keeping, IEPs, data management systems, etc.) and integration of technology and curriculum (see Figure 15).

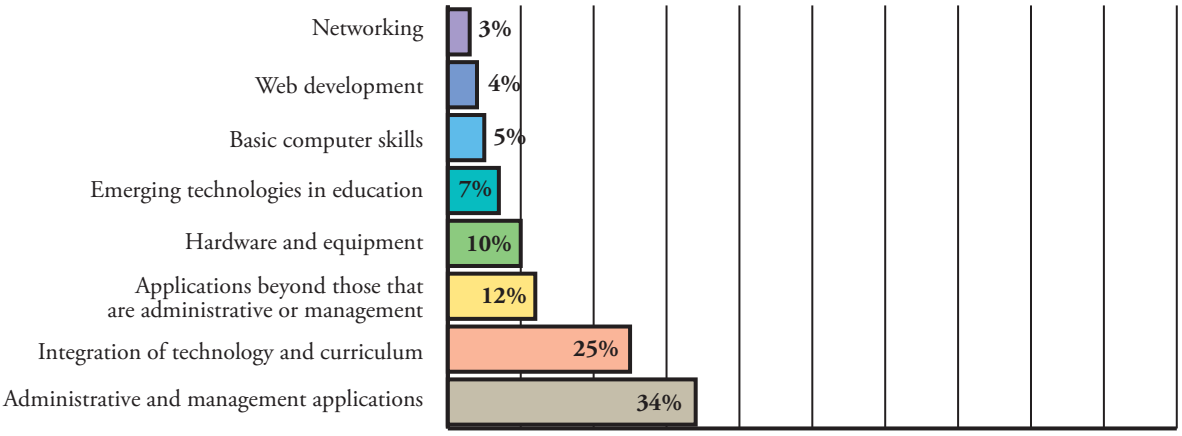


*Figure 15. Percentage of teacher training opportunities offered by districts by content category.*

Schools report that the method most frequently used for assessing the level of teacher proficiency with technology literacy (the ability to responsibly use appropriate technology to communicate, sole problems, and access, manage, integrate, evaluate, and create information to improve learning in all subject areas and to acquire lifelong knowledge and skills in the 21st century) was classroom observation, followed by classroom walk-through and surveys (see Figure 16).

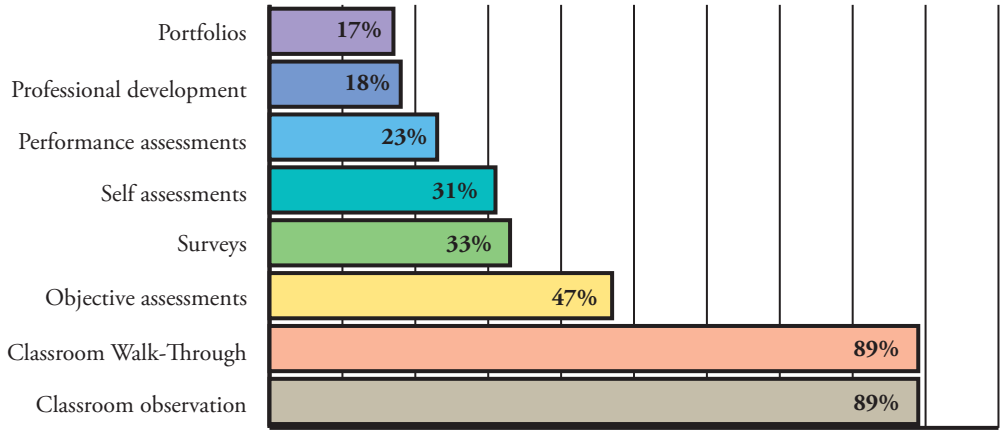


*Figure 16. Method for monitoring teacher competency in technology.*