

## 2006 Census of Technology Report



"Making a Positive Difference Through Education and Service"  
Dr. D. Kent King, Commissioner

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## I. Introduction

The Census of Technology (COT) is designed to assess Missouri's continuing investment in K-12 education technologies and to help guide forward efforts. It provides important data for the Department of Elementary and Secondary Education (DESE) to share with state and national decision-makers to increase public awareness and advance public policy and support for education technology. It provides local school districts with data to help identify needs and develop strategies to facilitate school improvement processes and compare district progress with statewide data. The COT is aligned with the *2002-2006 Missouri Education Technology Strategic Plan* (METSP) and is a primary data source for measuring progress toward meeting the state goals and objectives. A cross reference of the 2006 COT items and the METSP goals and objectives is provided as an appendix to this report.

A technology survey has been collected annually since 1997. Prior to 2001, DESE contracted with the University of Missouri's Office of Social and Economic Data Analysis to administer the project. In 2001, the census was incorporated into the April cycle of DESE's online core data collection system. The 2001 COT was the first to be completed by all districts; data collected prior to 2001 were adjusted to estimate the entire population.

The COT has two parts: a district-level survey and a school building-level survey. The District Census assesses the levels of planning and training for the district as a whole and concentrates on hardware, software, and levels of connectivity for the administrative buildings and offices. Completed by district-level administrators and/or technology specialists, the District Census includes information for all Missouri school districts (524).

The Building Census assesses planning and training needs for individual school buildings and focuses on hardware and levels of Internet connectivity in computer labs, libraries, and classrooms. Completed by building-level administrators or technology contacts, the Building COT collects data from preschools, elementary schools, middle schools, junior high schools, high schools, area career centers, and the majority of charter schools (those in operation at least one full year prior to the Census date). Exempted buildings include juvenile centers, special education cooperatives, buildings where attendance is reported at another building (such as a gifted center), or other buildings with no enrollment data.

This *2006 Census of Technology Report* arranges the 2006 data for both the district and building levels according to the following areas: technology planning, technology professional development, hardware and support, Internet connectivity-distance learning, technology usage, and technology funding. Where feasible and appropriate, this report presents and compares information from previous years. Aggregated responses for the district and building census forms are provided in the Appendix section of this report.

This report is one of several documents that examine the use and effectiveness of education technologies in Missouri. Other evaluation information can be found in the Missouri Education Technology Strategic Plan reports, eMINTS Program research reports, annual technology program reports, project descriptions, and annual evaluation narratives – all of which may be accessed from the Instructional Technology website at <http://dese.mo.gov/divimprove/instrtech>.

For additional information regarding the Census of Technology, contact the Instructional Technology section by telephone at 573-751-8247 or email at [instrtech@dese.mo.gov](mailto:instrtech@dese.mo.gov).

## II. Executive Summary

### A. Overview

The Census of Technology continued to show modest gains in the past year. While modest, the gains represent consistent improvement in Missouri's schools with regards to technology readiness and use during the 2005-2006 school year. Despite another year afflicted with sluggish economies at the state and local levels and significant decreases in state funds (including another year of not funding the Technology Acquisition Grant Program), Missouri schools continued to improve access to education technologies for administrators, faculty, staff, and students and report increases in their quality uses of those technologies.

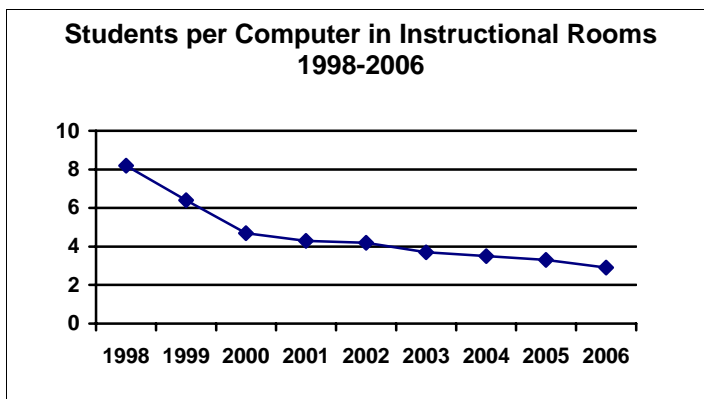
While advancements are slight, the 2006 data indicate that more schools are connected to one another and the Internet and more educational technologies are provided for teachers and students. Students, teachers, and administrators continue to become better skilled in using education technologies and, more importantly, continue to increase the frequency in which they use the technologies in meaningful ways.

#### INTERNET ACCESS

- Of the 2,229 school buildings reporting, over 2,155 or 97 percent have a partial T1 or higher Internet connection.

#### COMPUTER ACCESS

- Out of the 328,058 computers (includes handhelds) located across the buildings, over 305,000 computers (93 percent) are located in instructional rooms: 183,915 in classrooms, 97,212 in computer labs, and 24,240 in library media centers.
- The 2006 number of students per computer (all computers located across all buildings) is 2.73, compared to 3.09 in 2005, 3.26 in 2004, 3.29 in 2003 and 3.8 in 2002 and 2001.
- The number of students per computer in all instructional rooms is 2.94, compared to 3.48 in 2004, 3.66 in 2003, 4.21 in 2002, 4.34 in 2001, 4.65 in 2000, 6.4 in 1999, and 8.15 in 1998.
- The number of students per computer in classrooms is 4.88, compared to 5.55 in 2005, 5.89 in 2004 and 6.42 in 2003.



- The number of students per computer in instructional rooms has decreased from 8.15 students in 1998 to 2.94 students in 2006.

#### PRINCIPAL TECHNOLOGY SKILLS

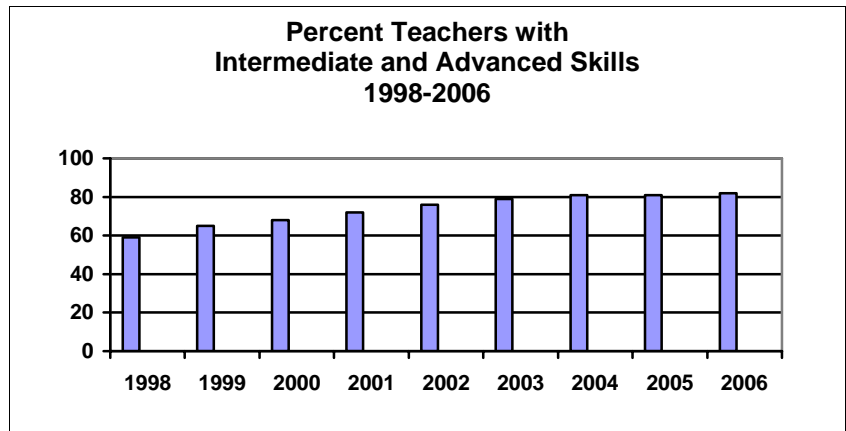
- Approximately 92 percent of principals have intermediate and/or advanced technology skills, compared to 91 percent in 2005, 92 percent in 2004, 90 percent of principals in 2003 and 82 percent in both 2002 and 2001.

- Schools report that 97 percent of the principals routinely use email – the same rate reported in 2005, 2004 and 2003, compared to 92 percent in 2002 and 74 percent in 2001.
- The rate of principals routinely conducting online research is 81 percent, compared to 79 percent in 2005, 80 percent in 2004, 79 percent in 2003, 69 percent in 2002, and 58 percent in 2001.

#### TEACHER TECHNOLOGY SKILLS

- Schools report that 76 percent of teachers routinely use educational software, compared to 78 percent in 2005 and 2004, 76 percent in 2003, 71 percent in 2002, and 59 percent in 2001.
- The rate of teachers routinely using technology for lesson plan preparation is 68 percent, compared to 66 percent in 2005 and 2004, 64 percent in 2003, 59 percent in 2002, and 45 percent in 2001.
- In 2006, 82 percent of teachers have intermediate and/or advanced technology skills, compared to 81 percent in 2005 and 2004, 79 percent in 2003, 76 percent in 2002, and 72 percent in 2001.

- The percent of teachers with intermediate and advanced technology skills has increased from 59 percent in 1998 to 82 percent in 2006.



#### STUDENT TECHNOLOGY SKILLS

- Schools report that 79 percent of students routinely use educational software, compared to 80 percent in 2005, 81 percent in 2004, 80 percent in 2003, 75 percent in 2002, and 62 percent in 2001.
- Approximately 90 percent of eighth-grade students are technology literate, the same number as 2005.

### B. Bulleted List of 2006 Findings

#### TECHNOLOGY PLANNING

- All districts have state-approved technology plans
- 2,190 school buildings (98 percent) have building technology plans

#### TECHNOLOGY PROFESSIONAL DEVELOPMENT

- Over 90 percent of districts have board-approved education technology standards
  - 84 percent have locally developed standards
  - 35 percent have adopted the National Educational Technology Standards (NETS)
  - 91 percent have standards for middle school/junior high students (grades 6-8), 89 percent for students in grades 3-5, 86 percent for PreK-2 elementary students, and 77 percent for high school students (grades 9-12)

- 83 percent have standards for teachers, 81 percent for school administrators, and 73 percent for support services staff
- The percentages of staff with intermediate and/or advanced skills in the use of education technology are as follows:
  - 98 percent of technology staff
  - 92 percent of school building administrators
  - 82 percent of teachers
  - 69 percent of school services staff
- buildings report having a total of 1,254 eMINTS-trained teachers
- buildings report having a total of 153 individuals involved in the Professional Development for Education Technology Specialists (PD4ETS) train-the-trainer program.

#### HARDWARE AND SUPPORT

- On average, districts provided 1.89 FTE for technical maintenance and support
  - School building technical support was most likely provided by district staff, followed by school certificated staff and other school staff
- School buildings provide access to 328,058 computers
  - 82 percent are PC or PC-compatible, 14 percent are Apple/Mac, and 4 percent are handheld computers
  - 93 percent of all computers are located in a classroom, computer lab, or library media center (LMC)
- The typical time-frame for resolving technical problems and repairs is two-to-three working days

#### INTERNET CONNECTIVITY AND DISTANCE LEARNING

- 92 percent of the districts have district-managed networks that connect all district buildings
- Most district networks support:
  - accounting/payroll – 99 percent of districts
  - student attendance – 95 percent of districts
  - library catalog – 93 percent of districts
  - email/communications and library catalog – 93 percent of districts
  - food service – 86 percent of districts
  - discipline reports – 80 percent of districts
- 98 percent of the school buildings have a partial T1 or higher Internet connection
- Buildings support distance learning systems
  - cable television – 1,191 buildings
  - interactive television – 434 buildings
  - satellite reception – 405 buildings
  - desktop videoconferencing – 265 buildings

#### TECHNOLOGY USAGE

- 99 percent of districts report having technology integrated into one or more core content curriculum:
  - 98 percent – communications arts
  - 94 percent – science
  - 92 percent – mathematics
  - 92 percent – social studies
- Almost all districts provide email accounts to staff:
  - 97 percent – school administrators
  - 95 percent – teachers
  - 92 percent – other district staff

- Fewer numbers of districts provide email accounts to students:
  - 111 – high school students
  - 54 – middle school students
  - 31 – students in grades 3-5
  - 9 – students in PreK-2
- Buildings report the following routine use of technology, by application and user type:

<i>Application</i>	<i>Administrators</i>	<i>Teachers</i>	<i>Students</i>
Educational software	44%	76%	79%
Email	97%	94%	11%
Electronic Resources:			
EBSCO host	16%	23%	22%
Electronic encyclopedia	14%	30%	34%
Gale	3%	6%	6%
Newsbank	5%	7%	7%
ProQuest	2%	3%	3%
SIRS	2%	4%	5%

- Buildings estimate the following routine uses of technology, by function and user type:

<i>Function</i>	<i>Administrators</i>	<i>Teachers</i>	<i>Students</i>
Produce media, web, or multimedia products	57%	51%	43%
Produce written or print products or presentations	80%	80%	60%
Communicate with peers, experts, others	95%	88%	21%
Communicate with parents and students	83%	74%	12%
Conduct online research	81%	76%	56%
Participate in online courses (this year)	11%	12%	2%
Manage student records	85%	76%	NA
Track student performance	84%	77%	NA
Assess student performance	74%	72%	NA
Deliver and present instruction	37%	60%	NA
Prepare lesson plan(s)	11%	68%	NA

- Leadership and support of teachers in integrating technology is provided by:
  - library media specialist – 60 percent of buildings
  - school administrator – 54 percent of buildings
  - teacher – 55 percent of buildings
  - district technology staff – 54 percent of buildings
  - instructional technology specialist – 34 percent of buildings
- Buildings estimate that 50 percent of the teaching staff fully integrate technology into the curriculum.
- Almost all buildings have one or more technology-mediated feedback systems:
  - email – 2,136 buildings – 96 percent
  - voice mail – 1,196 buildings – 54 percent
  - homework hotlines via the web – 319 buildings – 14 percent
  - automated absentee calling systems – 471 buildings – 21 percent
  - homework hotlines via the telephone – 294 buildings – 13 percent
  - listservs – 360 buildings – 16 percent

## TECHNOLOGY FUNDING

- Districts projected spending \$110.9 million in 2005-06 for technology-related activities and purchases.
- 404 districts (77 percent) applied for E-rate discounts in 2005-06:
  - districts projected a total of \$25.3 million in discounts
  - 97 percent of the discounts are used to support education technology

### III. Detailed Findings

This section of the *2006 Census of Technology Report* details all of the district- and building-level data, compares current data with previous years' data, and makes note of trends and/or anomalies found in data from the last several years.

#### A. District Census

All 524 Missouri school districts completed the COT in 2006. The District Census is a quick survey, comprised of 11 items that address technology planning, standards, administrative systems and support, and budgeting. See Appendix A for copies of the district and school building surveys, completed with aggregated data, and Appendix B for a cross reference of the 2006 COT items and the Missouri Education Technology Strategic Plan (METSP) goals and objectives.

Even with the continued loss of state funding (i.e., the Technology Acquisition Grant or TAG program), district responses to the 2006 COT indicate continued progress in technology readiness and use. Missouri districts appear to be making effective use of technology for administrative purposes, managing networks and systems that help improve district administration, data management, and communication.

#### TECHNOLOGY PLANNING

The district-level COT examines the presence of a board-approved and state-approved long-range education technology plan. A school district's long-range technology plan provides a road map for how the district will implement strategies that promote the district's mission, advance its comprehensive school improvement plan, and improve teaching and learning through the use of education technologies. DESE began approving technology plans in 1997 as a requirement for the E-rate program. Beginning in 1999, a state-approved technology plan became a requirement for participation in the state's technology grant programs and the MOREnet Technology Network Program. With the passing of the federal No Child Left Behind Act in 2001, DESE developed the 2002-2006 Missouri Education Technology Strategic Plan and updated accordingly the scoring criteria used to approve district education technology plans.

Early district technology plans dealt mostly with hardware and equipment and did little to address integration, student learning, or technology professional development. Now plans are much more comprehensive, as a result of the state plan and the scoring criteria for local plans both focusing on the development of plans that align with comprehensive school improvement plans and promote effective teaching strategies, student achievement, and adequate infrastructure and technical support.

#### Item 1 – State-approved technology plans

All districts have state-approved district technology plans. All district plans are approved using the scoring guide developed in 2002 in response to the No Child Left Behind Act and the 2002-06 Missouri state plan.

#### TECHNOLOGY PROFESSIONAL DEVELOPMENT

Professional development is a critical factor in teachers using technology in meaningful and effective ways. In November of 1997, the State Board of Education established policy that required buildings to allocate amounts equal to 20 percent of state technology grant funds for technology-related training. The policy went into effect for the 1998-1999 school year. The Title II.D (Ed Tech) Program, begun in 2002-2003, requires that 25 percent of formula and/or competitive grant funds be earmarked for professional development.

Data collected over the previous years indicate that teachers are increasingly interested in professional development sessions that address how to integrate technology into curriculum and instructional teaching strategies. Professional development is most effective when tied to comprehensive school improvement plans and to local, state, and national educational technology standards. The Missouri technology plan endorses the National Educational Technology Standards (NETS) for students, teachers, and school administrators developed by the International Society for Technology in Education (ISTE).

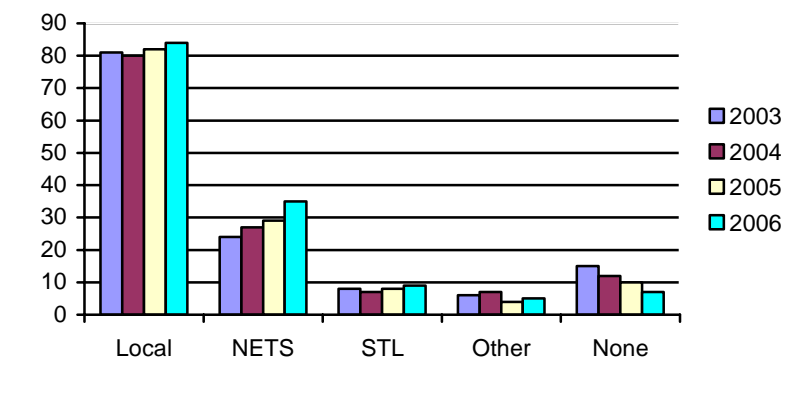
Item 2 – Educational technology standards

Added to COT in 2003, item two asked about the educational technology standards in place in the district. Standards provide guidelines for developing curriculum and guiding teacher and student behavior; they define a common agreement on what ought to be taught or learned. Also, educational technology standards serve as guidelines for planning technology-based activities in which students achieve success in learning communication and life skills.

In 2006, the vast majority of districts report having board-approved educational technology standards. Figure 1 shows that over four out of five (439) districts have standards developed by the district, with over three of ten (185) having adopted the National Educational Technology Standards, and nearly one of ten (51) adopting the Standards for Technological Literacy (STL) endorsed by the International Technology Education Association (ITEA). Many districts incorporate the national standards and locally-approved standards. Twenty five districts report having other standards, while 40 districts (7 percent) report having no board-approved standards. The 2006 data closely parallel the data collected in 2005, 2004 and 2003, but also show a modest increase in the number of districts adopting the NETS (as proposed in the state plan) and a decrease in the number of districts having no board-approved standards. Many of those districts adopting the NETS also incorporate locally developed standards.

**Figure 1**

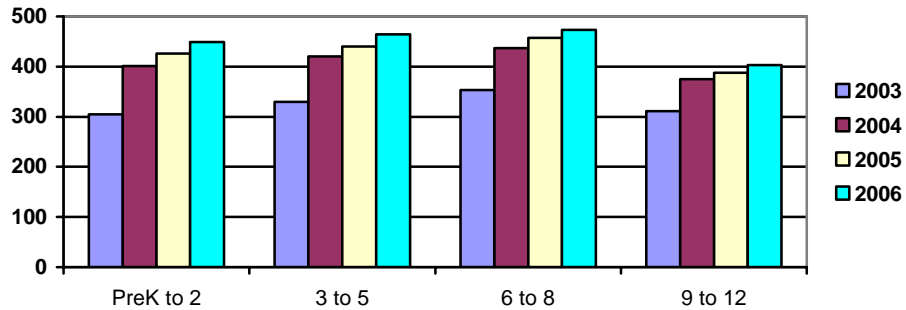
**Percent Districts with Education Technology Standards, by Standard Type, 2003-2006**



Over ninety percent of districts reported having technology standards for students: 449 districts have established standards for PreK-2 students, 464 have standards for students in grades 3-5, 473 have standards for middle school students (grades 6-8), and 403 have standards for high school students. One hundred percent of districts that house area career centers also indicate having standards for career center students. The number of districts with established technology standards has increased for all grade levels each year since 2003, as indicated in Figure 2.

**Figure 2**

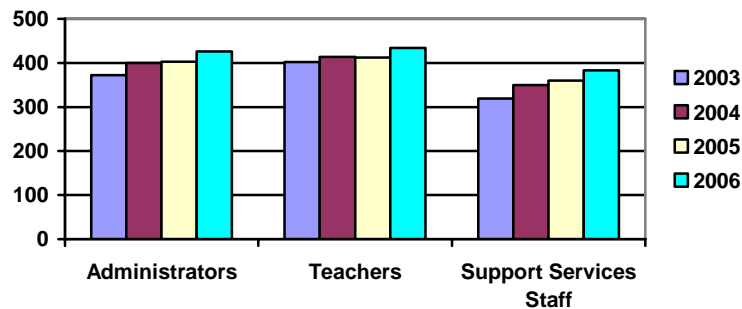
**Number Districts with Student Technology Standards, by Grade Spans, 2003-2006**



Over four of five districts (83 percent) report having technology standards for district employees: 434 districts have standards for teachers, 426 have standards for administrators, and 383 have standards for support services staff. Similar to the status of student standards, the number of districts that report having educational technology standards for school employees has increased from 2003 to 2006, as illustrated in Figure 3 below.

**Figure 3**

**Number Districts with Technology Standards for Faculty/Staff, by Employee Type, 2003-2006**



## HARDWARE AND SUPPORT

Technology integration is affected by the kinds of hardware and software that districts deploy. The district COT looks at who is responsible for technology hardware and support in the district, the administrative technologies in place in the district, and computer networking. Access to current technologies is an essential condition for district operations as well as for teaching and learning. Technology is essential to effective and efficient district administration, data management, and communications. Having district technology staff to help plan, purchase, install, and support district technologies is key.

### Item 3 – District technology staff

Item three asked districts to estimate the total number of district-level, full-time equivalent (FTE) staff responsible for technical maintenance and support. Overall, districts report having an average of 2.2 technical staff, which is only slightly higher than the 2.1 reported in 2005. The typical (median) district has only one full-time staff. In 2006, 31 districts report having no staff dedicated to overseeing district hardware and support.

### Item 4 – District-supported administrative systems

Added in 2004, item four examines district administrative systems – programs that are used to expedite the storage and use of data and information. Table 4 details the systems supported by a majority of the districts. Almost all districts (517) have accounting systems, and over 93 percent of districts support automated student attendance, electronic mail (email), and library catalog. Systems supported by less than half of the districts include school safety (123 districts), teacher evaluation (166 districts), instructional management (149 districts), human resources (184 districts), extracurricular scheduling (211 districts), and distance education (212 districts), although all those systems showed slight growth in 2005-06.

**Table 4**

**District Administrative Systems, 2004, 2005 and 2006**

System Type	Number of Districts		
	2004	2005	2006
Accounting/budgeting/payroll	511	513	517
Student attendance	461	488	498
Communication/email	452	478	489
Food service	431	420	451
Library catalog	432	475	491
Discipline	355	402	420
Health service	346	374	402
IEP management	345	382	401
Student performance	304	341	365

### Item 5 – District networks

The use of an interconnected system of computers and peripheral equipment enables connected users to communicate and share information and resources. Revised in 2005, item five assumes that districts have computer networks and asks how many districts have all buildings in the district connected through a wide (WAN) or local area (LAN) network. In 2005, nearly nine of ten (87 percent) districts reported all buildings being connected through a wide or local area network. In 2006, over nine of ten (92 percent) districts report all buildings being connected through a wide or local area network.

## TECHNOLOGY USAGE

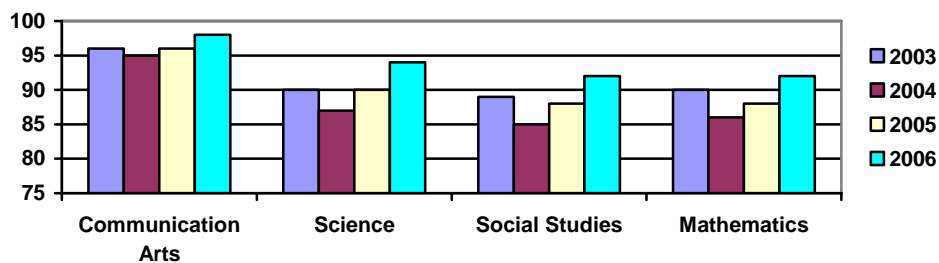
Previous items examined technology readiness, with integrating technology as the goal of making technology available and accessible. Technology usage items look at technology integration, the incorporation of technology resources and technology-based practices into daily routine – of districts, school employees, teachers, and students. At the district level, technology usage items check to see how districts support a culture that embraces technology and accepts technology as natural to the business of everyday work. Major goals of the Title II.D Program call for all districts to have technology integrated into core curricula and for students to be technology literate by the end of the eighth grade.

Item 6 – Curriculum integration

Technology integration in Missouri is defined as “written curriculum that incorporates content and processes (teaching, professional development, and assessment) related to technology resources, equity of resources, research and workplace readiness skills. Technology supports overall goals and objectives and makes possible and enhances the use of multiple instructional resources and teaching strategies (e.g., use of project-based learning, collaborative and cooperative learning, ongoing questioning, expert assistance, and critical analysis).” As depicted in Figure 5, data report technology is integrated in communication arts for 512 districts (98 percent), in science for 494 districts (94 percent), in social studies in 483 districts (92 percent), and in mathematics for 481 districts (92 percent) in 2006.

**Figure 5**

**Percent Districts with Technology Integrated in Curriculum, by Subject, 2003-2006**



In 2004, the state upgraded the definitions and/or standards related to technology integration, student technology literacy, and teacher technology integration skills in order to better align with national standards (NETS). The dip noted in 2004 of the percentages of districts reporting to have technology integrated in the core curriculum areas is a reflection of the revised definition for integration. The increases for 2005 and 2006, therefore, indicate more than just modest improvement.

Item 7– District-provided email

Districts, for item 7, indicate the percentage of employees (by type) and students (by grade-level spans) who are provided email accounts. Table 6 shows that nearly all (97 percent) districts provide email accounts to employees, but less than one-fourth of districts provide accounts to students. Districts that do provide staff email accounts, however, typically provide accounts for all administrators, teachers, and support staff.

**Table 6**

**District Email Accounts, 2003-2006**

<u>Population</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
District Employees				
• School administrators	504	515	502	508
• Teachers	499	510	495	498
• Support services staff	477	494	472	482
Students				
• Pre K-2	31	22	13	9
• 3-5	58	51	33	31
• 6-8	81	72	51	54
• 9-12	108	125	108	111

### Item 8 – Technology literacy

In 1997, COT began asking districts to estimate the percentage of sixth-grade students who are computer literate, a goal set forth by Governor Mel Carnahan in January of 1997. In 2004, the item was revised to address “technology literacy” rather than “basic computer skills” and revised again in 2005 to address eighth-grade students. These revisions better align the COT item with the Title II.D technology literacy goal.

In 2005 and 2006, the typical (median) district reports 90 percent of eighth-grade students as meeting the technology literacy standard as established by the state. Aligned to the NETS for students, a literate student is able to “apply strategies for identifying and solving routine hardware and software problems that occur during everyday use; exhibit legal and ethical behaviors when using information and technology; use content-specific tools, software, and simulations to support learning and research; design, develop, publish, and present products using technology resources that demonstrate and communicate curriculum concepts, and select and use appropriate tools and technology resources to accomplish a variety of tasks and solve problems.”

### TECHNOLOGY FUNDING

Districts are asked about their technology funding habits to study budget trends with regards to how much districts spend on technology and how districts make use of the national E-rate program.

### Item 9 – Technology budgets

Revised in 2005, this item simply asks for the total amount budgeted for technology for the current year. As noted in Table 7, districts estimated spending a total of over \$110 million during the 2005-2006 school year. The 2006 total finally exceeds the nearly \$108 million budgeted in 2003. While the average per district is \$211,980 in 2006, that amount is inflated by the number of larger schools with access to greater resources. The typical (median) district budgeted \$50,000.

**Table 7**

**District Technology Budgets and Expenditures, 2002-2006**

<u>Technology Budget Items (in millions)</u>	<u>02-03</u>	<u>03-04</u>	<u>04-05</u>	<u>05-06</u>
Hardware/Equipment	\$45.057	\$37.188	NA	NA
Instructional Software	12.784	5.077	NA	NA
Administrative Software	5.486	6.609	NA	NA
Professional Development	7.902	7.438	NA	NA
Connectivity-Distance Learning	5.456	5.473	NA	NA
Technical Support	17.974	17.423	NA	NA
Infrastructure/Retrofitting/Other	13.334	11.360	NA	NA
Total	\$107.993	\$90.569	\$105.861	\$110.929

### Items 10 and 11 – E-rate discounts

Item 10 asked districts if they participated in the Universal Service Fund's E-rate program for 2005-2006 and the estimated amount of discounts/savings, while item 11 asked what percent of the discount received by the E-rate program is used to support education technology activities and expenditures. While MOREnet files an E-rate application on behalf of the 510-plus districts and state schools that participate in the statewide network project (TNP), items 10 and 11 refer to district-filed applications for E-rate discounts.

In 2006, 404 districts (77 percent) report applying for E-rate discounts and receiving funding commitment decision letters (FCDLs) that total just over \$25.3 million. These figures compare to 414 districts (79 percent) in 2005 with discounts totaling nearly \$29.7 million, 381 districts (73 percent) in 2004 with discounts totaling \$32.55 million, and 374 districts (71 percent) in 2003 with discounts totaling over \$41 million.

Districts projected that 97 percent of the savings were used to support technology-related activities and expenditures, compared to 80 percent in 2005, 74 percent in 2004, and 61 percent in 2003.

## B. School Building Census

This section of the *2006 Census of Technology Report* analyzes data from 2,229 buildings, compared to 2,211 buildings in 2005, 2,207 buildings in 2004 and 2,250 buildings in 2003. While all buildings in the state complete the School Building Census Form, the report only covers those buildings with regular student populations. Data from juvenile centers, special education cooperatives, and other buildings (such as a gifted center) where attendance is reported at another building are not included in this report.

The school census is comprised of 18 items that are aligned to the Missouri State Education Technology Strategic Plan (METSP) and its five technology focus areas. Items examine access and distribution of the building's technology resources, technical support, teacher and student technical skills, and the routine uses of technology by user and technology type or function. A copy of the survey with aggregated data is provided as Appendix A, and Appendix B provides a cross reference of the 2006 COT items and METSP goals and objectives.

Overall, the 2006 data indicate some continued improvements in the kinds and numbers of technologies that can be accessed in Missouri's school attendance centers as well as in the ways school administrators, teachers, and students are using those technology resources. A good number of the gains are modest, at best, and likely a result of the tight budget year as explained earlier in this report. Some of the differences (or the magnitude of differences) noted in data from 2003 to 2006 can likely be attributed to the setting of higher standards (i.e., the changes in definitions for technology literacy and full integration) as described earlier, and to the change in reporting only buildings with regular student attendance. This is not to say there are not areas that show more noteworthy increases.

### TECHNOLOGY PLANNING

As with the district COT, the building census examines the presence of a long-range technology plan. A school building plan, like a district plan, should provide a road map to help the school implement strategies that promote the district's mission, advance district and building improvement plans, and improve the teaching and learning occurring in the building.

#### Item 1 – Building technology plans

Building contacts are asked if buildings have technology plans and, if so, whether they are stand-alone plans and/or are embedded in district plans. Table 8 indicates the percentage of school buildings that have technology plans, the percentage of building plans that serve as stand-alone plans, and the percentage of plans that are included in district plans. Data show a continued trend in buildings having technology plans, starting with only 69 percent of buildings having plans in 1998 to 99 percent having plans in 2006.

**Table 8**

**Status of Building Technology Plans, 1998-2006**

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Building has a technology plan	69%	83%	83%	83%	83%	95%	97%	98%	99%
Plan is part of the district technology plan	64%	96%	96%	96%	96%	88%	89%	92%	91%
Building has a stand-alone plan	NA	NA	NA	NA	NA	6%	7%	6%	7%

## TECHNOLOGY PROFESSIONAL DEVELOPMENT

The use of technology in the school setting requires professional development aimed at helping educators integrate the appropriate education technologies into curriculum content, instructional teaching strategies, and the day-to-day business of teaching and learning. Teachers, administrators, and school services staff need regular, ongoing, and quality professional development that helps them gain the confidence and skills needed in using the school's technologies in ways that promote district and school improvement plans and align with Show-Me Standards, board-approved curriculum, and board-approved educational technology standards.

### Item 2 – Technology skills of building staffs

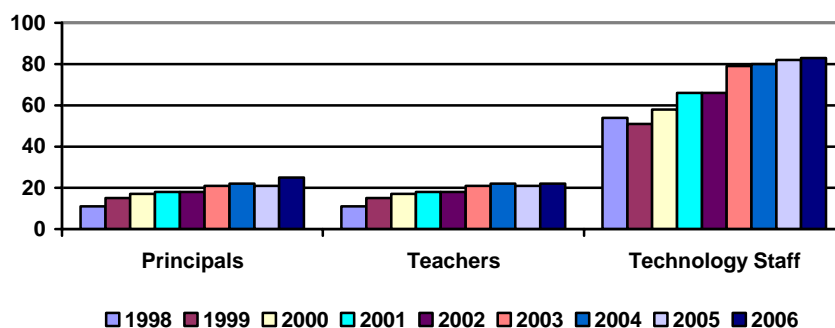
Building contacts are asked to estimate the technology-related skill levels of principals, teachers, technology support staff, and support services staff. The skill level options are: Beginner – basic technical skills including applications such as word-processing, some stand-alone software, and some Internet usage (email); Intermediate – regular use of applications, software, and Internet resources for increased productivity and the use of applications including word-processor for student writing, research on the Internet, computer-generated presentations; and, Advanced – complete integration and mastery of the technology, using it effortlessly as a tool to accomplish a variety of learning, instructional, and/or management tools.

Since 1998, the percentages of staffs with beginner skills have decreased steadily while the percentages with advanced skills have increased. The proportion of teachers estimated as beginner technology users has decreased from 40 percent reported in 1999 to 19 percent reported in 2004 and 2005 and then 18 percent in 2006. The rate of administrators (e.g., principals) estimated as having beginner skills has decreased from 35 percent in 1999 to eight percent in 2004 and 2006 (slightly lower than the nine percent reported for 2005).

Figure 9 illustrates the increase in the percentages of teachers, building administrators, and technology staff rated as having advanced technology skills from 1998 through 2006. (Note that the support services staff category was not included until 2003 and is addressed later.) The rates of teachers reported as advanced users has doubled from 11 to 22 percent. The group with the highest rate of advanced skills includes technology support staff at 83 percent in 2006, as compared to 54 percent in 1998.

**Figure 9**

**Percent Faculty/Staff with Advanced Skills, 1998-2006**

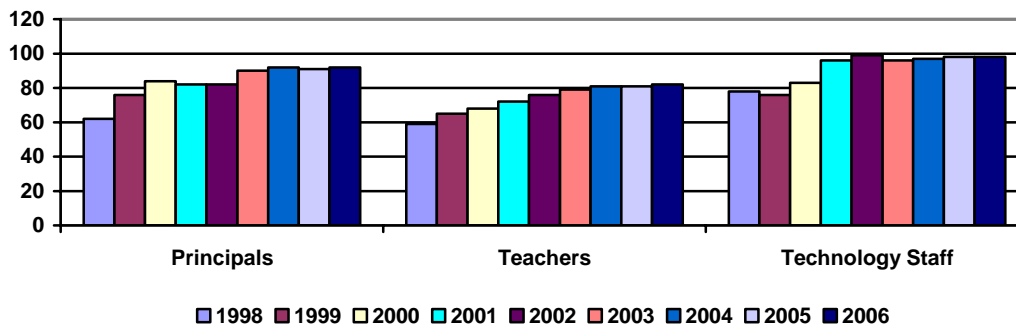


As mentioned above, the Census did not address skill levels of support services staff until 2003. Interestingly, these data have been relatively stagnant, with 51 to 52 percent of support services staff rated as having intermediate skills in 2003, 2004, 2005, and 2006. Also, the percentages of

staff rated as beginner or advanced have fluctuated little, ranging from 29 to 31 percent as beginners and 17 to 18 percent as advanced. The differences are somewhat less marked among the user groups when reporting on combined intermediate and advanced skills, as indicated in Figure 10. Almost all of the technology staffs (98 percent) have intermediate or better skills. Principals are close behind at 92 percent, followed by teachers at 82 percent, and support services staff at 69 percent.

**Figure 10**

**Percent Faculty/Staff with Intermediate or Advanced Skills, 1998-2006**



**Item 3 – Number of teachers participating in education technology related professional development (including eMINTS)**

Item 3, added in 2006, asks schools to report by range of hours, the number of teachers receiving education technology-related professional development. Districts were asked to include teachers participating in any of the eMINTS professional development programs. Data show 77 percent of the buildings reported 61 percent of their teachers had received 0 to 15 hours of education technology-related professional development from any source. At the other end of the range, 28 percent of the buildings reported 7 percent of their teachers had completed more than 30 hours of education technology-related professional development. On average only 1.51 teachers receive over 30 hours of education technology-related professional development. Table 11 reports this data.

**Table 11**

**Number of Teachers In School Building Participating In Education Technology-Related Professional Development (including eMINTS)**

	# of buildings	% of total buildings	# of teachers	% of total teachers
Completed less than 15 hours	1,717	77	35,652	61
Completed 15 to 30 hours	870	39	8,557	14
Completed more than 30 hours	622	28	3,368	6
Total	2,229		47,577	

**Item 4 – Number of eMINTS-trained teachers**

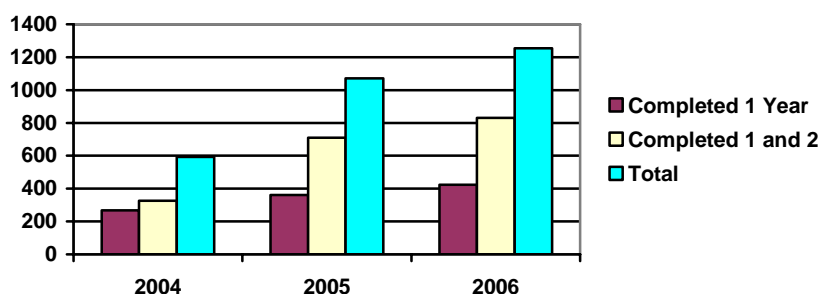
Added in 2004, item four asked schools to report the number of teachers in the building who have completed one or both years of eMINTS professional development. The *enhancing* Missouri’s Instructional Networked Teaching Strategies (eMINTS) program – that serves as the state’s instructional model of technology integration – supports teachers as they learn to integrate multimedia technology into inquiry-based, student-centered, interdisciplinary collaborative teaching practices that result in improved student performance, increased parent

involvement, and enriched instructional effectiveness. While the majority of eMINTS-trained teachers received their professional development from eMINTS instructional staff, more and more teachers are receiving their professional development through district staff that has completed the eMINTS program's "train-the-trainer" professional development. The item was revised in 2006 to provide specificity about the numbers of teachers being trained in a variety of Professional Development programs offered by eMINTS.

In 2004, contacts reported having 594 teachers with one or both years of eMINTS professional development. For 2005, these numbers increased to 1,071 teachers. In 2006, data reports 1,660 teachers involved in some type of eMINTS training. Figure 12 indicates the numbers of staff reported in 2004 and 2005 and 2006 as having completed one or both years of the eMINTS professional development for teachers.

**Figure 12**

**Numbers of eMINTS-Trained Teachers, By Number of Years of Training, 2004 - 2006**



For the 2006 census, districts were also asked to report the number of individuals being trained in the eMINTS for Education Technology Specialists program and other two-year eMINTS professional development programs such as eMINTS4All, eMINTS4Administrators. Table 13 reports these numbers.

Although the numbers continue to climb, the percentage of teachers trained to total number of teachers continues to show a wide gap.

**Table 13**

**Number of eMINTS-Trained Teachers, By Number of Years of Training and Program, 2006**

	Completed Year 1 only		Completed both Year 1 and 2		Total Teachers
	Teachers	Buildings	Teachers	Buildings	
Comprehensive eMINTS for Teachers	423	162	831	297	1254
eMINTS for Education Technology Specialists	71	31	82	57	153
Other two-year eMINTS staff development programs	179	43	74	30	253

## HARDWARE AND SUPPORT

Hardware and support items deal with technology access and support issues at the building level. These items cover the level of technical support, and the numbers of computers by type and location (and student per computer ratios).

Item 5 – Building technical support

Building contacts were asked in item five to estimate the total of school staff or others directly responsible for technical maintenance and/or support of the building’s hardware. Table 14 indicates the number and percentage of buildings, and where appropriate the full-time equivalency (FTE), relying on the various types of technical support provider. In general, buildings engage employees rather than non-employees to provide such support. In 2006, all but 108 buildings (five percent) reported relying on employees. In total, buildings reported an average of 1.89 FTE employees providing technical support. However, the typical (median) building has closer to one employee responsible for support.

**Table 14**

**Building Technical Support – 2006**

<u>Employees</u>			<u>Non-Employees</u>		
1778	80%	District staff	208	9%	Students
696	31%	School certificated staff	23	1%	Parents/community
594	27%	School non-certificated staff	596	27%	Vendors/contractors
108	5%	None	1465	66%	None

The 2006 technical support data correspond closely with data collected in 2003, 2004, and 2005, as shown in Table 15. Following building-level technical support being provided by district-level staff, the next likely providers of support are certificated staff, vendors, and/or non-certificated staff. While few buildings rely on parent/community support, the percent of buildings making use of student assistance has decreased to nine following an increase from five in 2004 to 13 in 2005.

**Table 15**

**Building Technical Support Providers, 2003-2006**

<u>Technical Support Provider</u>	<u>Buildings Responding</u>			
	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
District staff	50%	78%	79%	80%
School certificated staff	26%	36%	31%	31%
School non-certificated staff	19%	21%	24%	27%
Vendor/Contractor	18%	18%	32%	27%
Students	5%	9%	13%	9%
Parents/Community	2%	2%	2%	1%

Items 6 and 7 – Computers in the building

Annually, buildings report on the types and locations of computers in the buildings. Item six counts computers by platform and speed capacity, and item seven counts Internet-connected and multimedia-equipped computers. Locations include Computer Labs, specifically designated for computer work; Instructional Rooms, designated as classrooms; and Library/Media Centers, designated for library and media services. In 2005, the Instructional Rooms were further broken out, by the grade spans of PreK-2, 3-5, 6-8, 9-12, and area career center. The handheld computer was also added to item five in 2005.

As indicated in Table 16, buildings reported 328,058 computers in 2006 – a ten percent increase from the 299,113 building computers reported in 2005. 81 percent of the computers are PC or PC-compatible, 92 percent are connected to the Internet, 88 percent can operate

multimedia programs, and 98 percent are considered Internet-capable. In 2005, the standard for being considered Internet-capable (or modern and able to run the Internet at high speeds) was updated to include: PC computers that run at Pentium or Pentium-equivalent speeds, Power Mac or G series Apple Computers, and AMD computers at or above 450 MHz.

**Table 16**

**Numbers, Types, and Location of Computers, 1998-2006**

	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Total number of computers	176,148	206,864	237,115	232,808	270,368	273,636	299,113	328,058
• Desktop/laptop computers	176,148	206,864	237,115	232,808	270,368	273,636	288,926	315,485
• Handheld computers	NA	NA	NA	NA	NA	NA	10,187	12,575
Of Desktop/laptop computers...								
Located in instructional rooms	158,908	187,298	219,188	211,382	242,981	257,347	270,342	294,319
• Percent of all computers	90%	91%	92%	91%	90%	94%	93.4%	93%
Located in Classrooms	83,238	101,278	119,450	116,832	138,672	151,962	160,797	174,056
• Percent of all computers	47%	49%	50%	50%	51%	56%	56%	55%
• Percent-instructional rooms	52%	54%	54%	55%	57%	59%	59%	59%
Located in Computer Labs	60,815	69,319	81,057	77,373	83,897	84,162	87,260	96,313
• Percent of all computers	35%	34%	34%	33%	31%	31%	30%	31%
• Percent-instructional rooms	41%	37%	37%	37%	35%	33%	32%	33%
PC/PC-compatible	120,888	148,473	177,916	185,901	221,285	228,784	245,654	268,887
• Percent of all computers	69%	72%	75%	80%	82%	84%	85%	85%
Internet-capable	136,165	173,774	195,826	226,127	254,908	265,591	270,609	260,607
• Percent of all computers	77%	84%	83%	97%	94%	97%	94%	83%
Multimedia Equipped	91,354	131,490	170,807	190,353	211,124	234,377	247,305	289,547
• Percent of all computers	52%	64%	72%	82%	78%	86%	86%	92%
Internet Connected	105,872	145,221	179,509	205,068	222,522	244,976	261,932	303,400
• Percent of all computers	60%	70%	76%	88%	82%	90%	91%	96%
Handheld Computers	NA	NA	NA	NA	NA	NA	10,187	12,575
• Percent of all computers	NA	NA	NA	NA	NA	NA	3%	4%

Approximately 93 percent of all computers are located in instructional rooms (computer labs, classrooms, and library media centers). Overall, the 2006 data indicate little increase in all categories of computers.

The 2006 data indicate the shift in the location of computers has slowed. Since 1999, the range of computers located in a lab setting remains in the 30 percent range with a high of 36 percent in 1998. The percentage of computers residing in classrooms increased from 47 percent in 1999 to 56 percent in 2004 and remains at that level in 2005 and 2006. The shift is more noticeable when looking at the placement rates of computers within the instructional settings. In 2006, only 32 percent of “instructional” computers were located in labs as compared to 41 percent in 1999. The percent of “instructional” computers in classrooms has grown from 52 percent in 1999 to 60 percent in 2006.

Handheld computers have begun to appear in school districts. In 2006, districts report 899 handhelds in lab situations, 1,155 in PK-2 classrooms, 3,912 in grades 3-5, 2,222 in grades 6-8 and 2,375 in grades 9-12. Area Career Centers report 195 handhelds and LMCs report 290, while 1,527 are being used by administration. Table 17 shows the number of handhelds reported for 2005 and 2006 and their locations.

**Table 17**

**Location and Number of Handheld Computers 2005 and 2006**

	<u>2005</u>	<u>2006</u>
Computer labs	565	899
PreK-2	814	1,155
3-5	3,249	3,912
6-8	1,955	2,222
9-12	2,082	2,375
ACC	111	195
LMC	179	290
Admin Offices	1,232	1,527
Total	10,187	12,575

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**Item 7 – Computer Internet connections**

For the third year, building contacts were asked to indicate the status of Internet connectivity by type of computer (desktop or laptop) and type of connection (wired or wireless). In 2004, 2005, and 2006 nearly all desktop computers (98 percent) had wired connections to the Internet. In 2006, three of four laptops had wireless connectivity.

Figures 18, 19, and 20 indicate the numbers of students per computer for 1998 through 2006. Ratios are determined using the COT data regarding numbers and types of computers and Core Data fall enrollment figures. As schools purchase new computers, older computers may be relocated within or surplus out of the district. The numbers of computers in use continue to climb, resulting in a steady decline in the numbers of students per computers. Ratios are declining related to the number of students per high-speed (Internet-capable) computer and Internet-connected computer. The greatest decline relates to Internet-connected computers, as more and more buildings, classrooms, and computers are being connected to the Internet. Overall, the number of students per all computers has dropped from 6.4 in 1998 to 2.74 in 2006; the number of students per Internet-capable computer has dropped from 8.3 to 3.4 and, the number of students per Internet-connected computer has dropped from 13.5 to 2.96.

Figure 18

Number of Students per Computer Type, 1998-2006

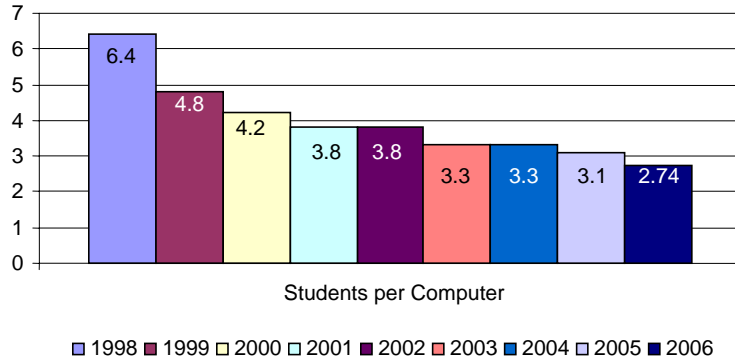


Figure 19

Number of Students per Internet-Capable Computer, 1998-2006

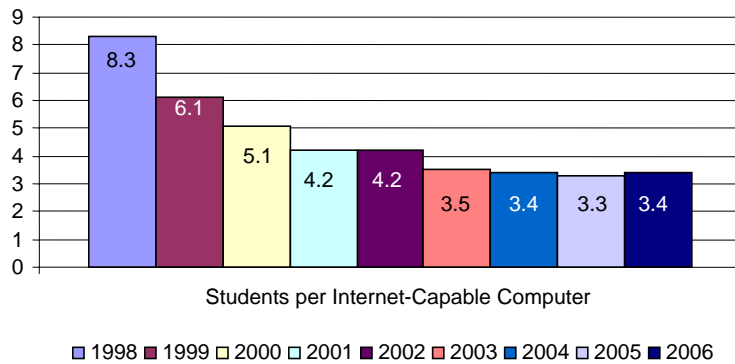
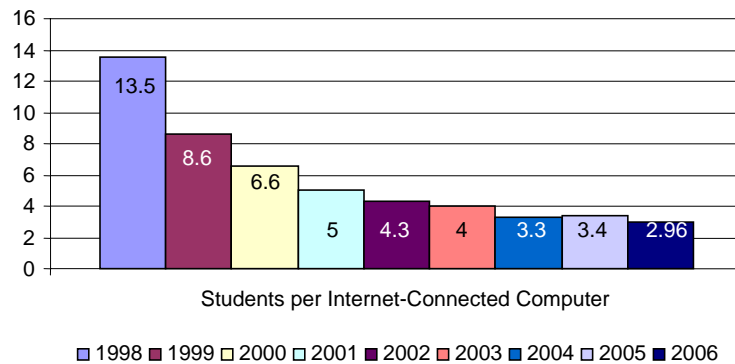


Figure 20

Number of Students per Internet-Connected Computer, 1998-2006



### Item 8 – Technology in instructional rooms

Annually, buildings are asked to report on a list of technologies the state believes should be available in instructional rooms, based on current research and the eMINTS instructional model. These resources include telephone access, multimedia-equipped and Internet-connected computers, and teacher workstations that include a dedicated projection device (LCD panel or other type of video projector) and access to a printer.

Note that a technical problem made it impossible to report 2005 data. Tables 21 through 24 provide snapshots of the technologies located specifically in computer labs, instructional rooms, and library media centers (LMCs) for the base year of 1999, and 2002, 2003, 2004 and 2006. Overall, modest gains were noted in the majority of the technology categories. Note that the item about Internet access was changed in 2004 to indicate real access rather than “wired for” access, thus the expected drop in 2004.

In general, computer labs, LMCs and classrooms are on the verge of having the same access to education technologies, except for phones and the last category, complete teacher workstations. For example, 84 percent of LMCs had phone access in 2006, compared to 58 percent of labs and 56 percent of classrooms. However, 98 percent of labs, and LMCs and 97 percent of classrooms have internet access, 95 percent of labs, 93 percent of LMCs, and 91 percent of classrooms have a multimedia equipped computer, and 93 percent of the labs, 91 percent of LMCs, and 90 percent of classrooms have internet-connected computers. The lowest rates of access for all room types, not surprisingly, involve having the full suite of technology available.

**Table 21**

**Computer Lab, LMC and Classroom Technologies, 2006**

	Labs	LMC	Classroom
Total number of rooms	4,305	2,164	56,558
Number with telephone access	2,516	1,822	33,771
Number with Internet access	4,230	2,117	55,536
Number with multimedia-equipped computer	4,096	2,023	52,361
Number with Internet-connected computer	4,017	1,968	51,356
Number with complete teacher workstation	2,560	959	16,677

**Table 22**

**Computer Lab Technologies, 1999 and 2002 – 2006\***

<u>Computer Labs</u>	<u>1999</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2006</u>
Total	2,824	3,303	3,723	3,747	4,305
Percent with telephone access	NA	61%	63%	63%	58%
Percent with Internet access	86%	96%	98%	92%	98%
Percent with multimedia-equipped computer	77%	91%	93%	92%	95%
Percent with Internet-connected computer	72%	86%	91%	93%	93%
Percent with complete teacher workstation	43%	43%	52%	58%	59%

\* Note: 2005 Data not available

Data for the computer labs changed very little from 2002 to 2004, with the 2004 data almost identical to the 2003 data. However, in 2006, data indicates an increase in the overall number of labs, with a 6 percent increase noted in the numbers of labs with internet access, a 3 percent increase in labs equipped with multimedia-equipped computers and a 1 percent increase in the number of labs with complete teacher workstations.

**Table 23****Instructional Room Technologies, 1999 and 2002-2006\***

<u>Instructional Rooms</u>	<u>1999</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2006</u>
Total	49,936	55,142	60,248	60,856	57,198
Percent with telephone access	NA	49%	55%	56%	60%
Percent with Internet access	74%	96%	96%	92%	98%
Percent with multimedia-equipped computer	52%	85%	88%	89%	93%
Percent with Internet-connected computer	46%	79%	85%	88%	90%
Percent with complete teacher workstation	13%	18%	21%	24%	30%

\* Note: 2005 Data not available

Classroom technology has improved substantially over the years. Progress continued in 2006, with gains noted for every category. Many of the gains show most classrooms are equipped with internet access and a computer capable of utilizing that access, noteworthy given the state's decrease in funding. However, whether or not that access is available to students or just on the teacher computer is not shown. Over half of the classroom teachers have telephone access in 2006, and only about one in three has access to the full suite of classroom technologies.

**Table 24****Library Media Center Technologies, 1999 and 2002-2006\***

<u>Library Media Centers</u>	<u>1999</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2006</u>
Total	2,025	2,148	2,319	2,237	2,164
Percent with telephone access	NA	85%	88%	87%	84%
Percent with Internet access	75%	93%	98%	89%	98%
Percent with multimedia-equipped computer	75%	88%	90%	90%	93%
Percent with Internet-connected computer	68%	84%	89%	90%	91%
Percent with complete teacher workstation	32%	27%	37%	43%	44%

\* Note: 2005 Data not available

Data have remained fairly constant for the LMCs during the past years. However, in 2006, the number of libraries with Internet-connected computers rose 9%. For the second year, LMC telephone access has decreased, however LMCs still indicate having telephone access at rates higher than those reported for computer labs and instructional rooms.

In 2006, the question about automated systems in place in building library media centers (LMCs). was deleted from the Census of Technology. The information collected, which specific brand of automation system was in place, was utilized by the State Library to study automation systems in schools. The study has been completed.

**Items 9 and 10 – Technical maintenance and repair**

First addressed in 2003, item nine asked the length of time needed for technical problems or repairs to be resolved. Buildings report in 2006 that it typically takes two-to-three working days to resolve minor or routine technical problems or repairs – the same length of time reported in 2003, 2004, and 2005.

**INTERNET CONNECTIVITY / DISTANCE LEARNING**

This section of the COT deals with building networking, Internet, and interconnectivity issues. Items address the systems in place that facilitate quality, secure, and safe access to people and information both in and outside the school building.

### Item 11 – Internet bandwidth

Table 25 profiles Internet access data reported since 2002, with ever-increasing percentages of school buildings accessing the Internet through dedicated, direct means. In 2006, over 1,255 buildings report having a T1 (or split T1) line and 900 buildings report connectivity at higher speeds. Only four buildings report not having a direct connection to the Internet in 2006.

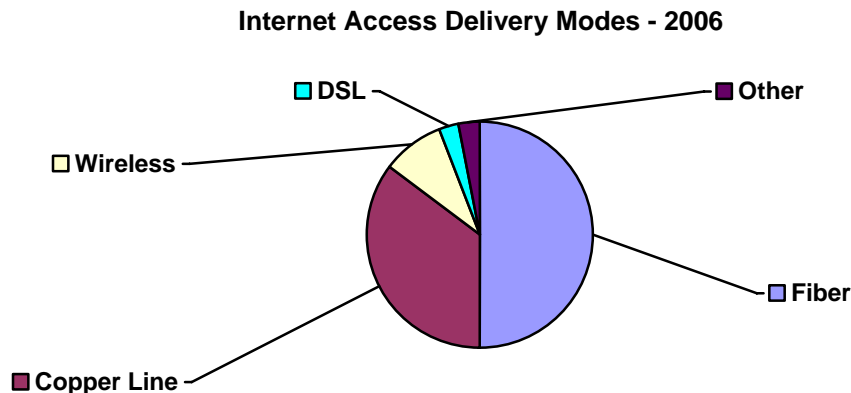
**Table 25**

**Internet Access, 2001-2006**

<u>Number of buildings</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Total number of buildings	2,128	2,250	2,207	2,211	2,229
Percent with Internet access	97%	98%	99%	99%	99%

In 2005, item 11 was changed to also ask about the delivery mode. Figure 26 indicates the primary methods for accessing the Internet in 2006. Over 1,000 buildings (50 percent) have fiber connections, over 750 (35 percent) have copper line, over 200 (nine percent) use wireless/point-to-point/frame relay, and 68 (three percent) have digital subscription, or DSL. Of the remaining buildings, less than 1 percent (8) use some other mode of delivery (such as satellite), and 1 percent (33) report having no method for accessing the internet.

**Figure 26**



### Item 12 – Computer networking

Originally, this item had two parts – about the percentage of computers in the building that are connected through a local or wide area network, and whether the building was connected to the district LAN or WAN. This item was revised in 2005 to deal only with computer networking. The part of the item that asked about building connectivity was moved to the District Census.

Table 27 shows an increase in the numbers of computers connected to a building (or district) network, from 88 percent of computers in 2003 to 100 percent presently. In 2006, the typical (median) building has all computers networked.

**Table 27****Computer Networking, 2003-2006**

	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Percent computers connected to building LAN (or district WAN)	88%	94%	96%	100%

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**Item 13 – Distance learning systems**

For several years, a distance learning item addressed accessibility to programming that is originated from outside of the building. The item was revised in 2005 to better define and distinguish among five options: Cable television and Satellite programming that incorporates one-way instructional video; Interactive television (or I-TV) and Desktop video-conferencing that provides two-way audio and video instruction; and Web-based online instruction that is Internet-based and non-interactive.

In 2006, three of four buildings report having at least one distance learning system available. This compares to four of five buildings in 2004, which can likely be explained by the change in options and the more formalized definitions of the options. With regards to systems in place, Table 28 shows the most commonly used system since 2002 is cable television. In the past four years, more and more buildings have access to Web/Internet-based and interactive television instruction.

**Table 28****Distance Learning Systems, 2002-2006**

<u>Distance Learning Systems</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Cable television (one-way video)	285	1,371	1,276	1,140	1,191
Satellite programming (one-way video)	163	642	518	399	405
Interactive television (two-way interactive)	239	390	379	485	434
Desktop/IP-based videoconferencing*	205	1,107	893	270	265
Web-based, online instruction (non-interactive)	NA	NA	NA	703	807
None	NA	180	439	551	510

\* Note: IP-based instruction was divided into two categories in 2005

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**TECHNOLOGY USAGE**

The remaining building items address how building faculty, staff, and students use the education technologies available to them in school. Emphasis is placed on “routine” use, described as being used or implemented at least three times per week. As explained earlier in this report, the Missouri School Improvement Program (MSIP) requires districts to report these and similar data. Likewise, the scoring guide used for state approval of district technology plans places more emphasis on usage data. Both of these accountability measures factor in the following analyses.

**Item 14 – Routine use of technology, by technology type**

This item has typically asked how principals, teachers, and students have used educational software, the Internet, and electronic resources. The item also helps track the impact of state and federal funding that promote the use of educational technologies. Besides supporting the state network, the state appropriates funding to the Secretary of State’s Office / State Library for the purchase of electronic resources that are made available to all network users via their

MOREnet connection. In 2005, the item was revised to delineate electronic resources that include the following:

- EBSCOhost Electronic Journals Service – a gateway to thousands of journals containing millions of articles from hundreds of different publishers.
- Gale – numerous products focused on specific topics such as Authors or history.
- Newsbank – comprehensive database resource containing information from newspapers.
- ProQuest – a comprehensive digital database containing in-depth coverage of more than 7,400 publications and millions of complete articles.
- SIRS Researcher – a general reference database containing thousands of full-text articles exploring social, scientific, health, historic, business, economic, political, and global issues selected from 1,600 domestic and international publications according to strict criteria with regard to content relevance, reliability, and age appropriateness.

Table 29 reports on the use of these resources in public schools. That the statistics reported in the table are very low can likely be explained as not all buildings had access to each resource and not all populations would be expected to make regular use of each resource. Note that EBSCOhost and Newsbank are made available to districts via their participation in the state-supported MOREnet Technology Network Program (TNP). In 2006, 513 of the 524 districts, and the state schools for the blind and deaf, were TNP customers.

Overall, the data show a slight increase in usage of most services, but, as represented in Table 29, usage is still disappointing at best. It is apparent that the state needs to take some action. Steps might include information dissemination and the offering of workshops that explain what is available and how to access and make use of these resources in meaningful ways.

**Table 29**

**Buildings Reporting Use of Electronic Resources, by User Type - 2006**

<u>Resource</u>	<u>Principals</u>	<u>Teachers</u>	<u>Students</u>
EBSCO host	530	1370	1076
Electronic encyclopedia	476	1540	1475
Gale	138	404	334
Newsbank	192	525	427
ProQuest	73	242	50
SIRS	100	306	255

**Item 15 – Routine technology use, by function**

This item has typically asked building contacts to estimate the percentages of administrators (e.g., principals), teachers, and students that routinely use computers and computer technologies for specific functions. Tables 30 through 32 illustrate such technology usage for 1999 through 2006. While in some instances the 2006 responses are the highest ever reported, there are other instances of only modest increases and some categories that are still below expectations. Note that “routine use” was upgraded in 2004 to indicate three or more times per week.

Table 30 details routine technology use by school principals. Reflecting their responsibilities, these educators are more apt to use technology for research, writing, email, and student data manipulation than for curriculum and instruction. Over the years, the areas where principals show the greatest increase in usage include the use of technology to track student performance,

4 percent, manage student records, 3 percent, conduct research, 3 percent, assess student performance, 3 percent, and the production of media, web, or multimedia products or presentations for demonstration purposes, 3 percent. Smaller increases are shown in the areas of communicating electronically with peers, experts, or others and parents and students, 2 percent, followed by produce written products 1 percent. These technology areas are two of the most highly utilized functions, thus having little room for growth. Deliver/present instruction, participating in online coursework and preparing lesson plans, two functions not routinely expected of administrators, did not show any increase over 2005 data.

**Table 30**

**Routine Use of Technology by Building Principals, 1999-2006**

<u>Technology Function</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Produce media/presentation products	26%	29%	31%	43%	46%	50%	54%	57%
Produce written products	65%	68%	56%	67%	73%	77%	79%	80%
Conduct online research	57%	62%	58%	69%	79%	80%	78%	81%
Communicate with peers, experts, others	53%	58%	48%	63%	79%	87%	93%	95%
Communicate with parents and students	NA	NA	NA	NA	NA	NA	81%	83%
Prepare lesson plans	8%	9%	13%	14%	16%	15%	11%	11%
Manage student records	61%	66%	60%	71%	81%	83%	82%	85%
Track student performance	49%	54%	56%	67%	78%	81%	80%	84%
Assess student performance	NA	NA	NA	58%	67%	72%	71%	74%
Deliver/present instruction	13%	18%	21%	28%	37%	39%	37%	37%
Enroll in online coursework	NA	NA	NA	NA	4%	7%	11%	11%

Table 31 covers routine teacher use of technology. Eighty percent of teachers typically use technology for writing, 76 percent for research information collection and keeping track of student performance, 76 percent to help manage student records, and 72 percent to assess student performance. Technology usage has remained fairly stable for the past three years. Areas where teachers show the greatest increases in routine use from 2003 to 2006 include the use of technology to communicate with peers, experts and others (from 50 to 88 percent), manage student records (64 to 76 percent), assess student performance (64 to 72 percent), track student performance (69 to 77 percent), and deliver/present instruction (46 to 60 percent).

**Table 31**

**Routine Use of Technology by Teachers, 1999-2006**

<u>Technology Function</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Produce media/presentation products	20%	24%	29%	37%	43%	47%	48%	51%
Produce written products	62%	66%	60%	71%	77%	81%	79%	80%
Conduct online research	54%	59%	56%	67%	74%	75%	75%	76%
Communicate with peers, experts, others	NA	NA	NA	NA	50%	68%	85%	88%
Communicate with parents and students	41%	46%	39%	53%	62%	66%	72%	74%
Prepare lesson plans	42%	47%	45%	59%	64%	66%	66%	68%
Manage student records	40%	45%	46%	56%	64%	70%	73%	76%
Track student performance	47%	52%	48%	61%	69%	74%	75%	77%
Assess student performance	NA	NA	NA	55%	64%	69%	70%	72%
Deliver/present instruction	20%	26%	29%	38%	46%	51%	57%	60%
Enroll in online coursework	NA	NA	NA	NA	5%	9%	11%	12%

Table 32 depicts routine student use of technology. While students routinely use technology more than they did in 1999, their usage rates generally lag behind those noted for teachers and administrators. However, in two categories, produce written products and conduct online research include over half of students. Media presentations rose from 40 to 43 percent.

Although email to communicate with peers or experts rose from 20 to 21 percent, email to communicate with parents decreased from 13 to 12 percent. Use of technology to enroll in online coursework remained the same at 2 percent.

**Table 32**

**Routine Use of Technology by Students, 1999-2006**

<u>Technology Function</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Produce media/presentation products	18%	22%	23%	32%	37%	29%	40%	43%
Produce written products	58%	61%	52%	65%	68%	46%	59%	60%
Conduct online research	52%	57%	49%	59%	63%	NA	53%	56%
Communicate with peers, experts, others	NA	NA	NA	NA	NA	12%	20%	21%
Communicate with parents and students	NA	NA	NA	NA	NA	7%	13%	12%
Enroll in online coursework	NA	NA	NA	NA	NA	7%	2%	2%

**Item 16 – Technology integration support**

Table 33 indicates the positions available in, or available to, the school building for leadership in integrating technology into curriculum and instruction from 2003. Integration assistance is typically the charge of a district or building technology coordinator and/or administrator. With increases in the numbers of buildings reporting assistance from persons residing in the buildings – such as a library media specialist, instructional technology specialist, or teacher – schools should be in better position to respond to instructional support needs.

**Table 33**

**School Leaders in Technology Integration, 2003-2006**

<u>Position Responsible for Providing Assistance</u>	<u>Percent Buildings Reporting</u>			
	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
School building administrator	53%	57%	53%	54%
Technology coordinator (any)	49%	58%	NA	NA
• District technical staff	NA	NA	47%	54%
• School technical staff	NA	NA	20%	21%
Teacher(s)	46%	48%	52%	55%
Instructional technology specialist	24%	32%	34%	34%
Library media specialist	43%	54%	58%	60%

**Item 17 – Teacher technology integration**

Added in 2002, this item asked the building contact to estimate the percentage of teachers who fully integrate technology into curriculum and instruction. Based on the eMINTS instructional model, full integration is defined as the “ability to use instructional strategies that promote authentic project-based learning opportunities, student teamwork, collaboration and communication using technology in the classroom curriculum.” Table 34 indicates that again in 2006, half of the teachers meet this standard, compared to 53 percent in 2004, 41 percent in 2003, and 33 percent in 2002.

**Table 34**

**Percent Teachers Integrating Technology, 2002-2006**

	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Teachers fully integrating technology	33%	41%	53%	50%	50%

Item 18 – Technology-mediated feedback systems

Another item added in 2002 to align with the state plan, this last item asked about technology-mediated feedback systems in place to help facilitate effective communication between schools and patrons, including students and parents. In 2006, all but 93 buildings indicate making use of some system, compared to 79 buildings in 2005 and 129 buildings in 2004. Table 35 indicates, as noted the previous three years, the most commonly used systems include email and voice mail. Note, however, that the use of the Web for communication tripled from 2004 to 2005 (from under 200 to over 600 buildings). In 2006, the use of the web for homework decreased by 48% from it's high in 2005, although email usage continues to climb.

**Table 35**

**Percent Buildings with Technology-mediated Feedback Systems, 2002-2006**

<u>Feedback System</u>	<u>Number of Buildings</u>				
	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>
Email	822	2,007	2,207	2,075	2136
Voice mail	546	1,053	1,037	1,115	1196
Listserv	28	354	300	287	360
Automated absentee calling system	179	296	283	416	471
Homework hotline via telephone	221	280	281	331	294
Homework hotline via Web	62	160	185	611	319

# Appendix A

<b>Missouri Census of Technology</b>	<b>District Level Census Form (2006)</b>
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Complete this census form to reflect district technology status as of **March 1**.  
 It is recommended that you make a copy of the completed census for your files.  
 Consult the Core Data Manual and [Help](#) file, call (573) 751-8247, or e-mail: [instrtech@dese.mo.gov](mailto:instrtech@dese.mo.gov) for assistance as needed.

N=524

1) Year district technology plan was last approved by DESE (prefilled from section files): [2003\(277\)](#), [2004\(74\)](#), [2005\(61\)](#), [2006\(111\)](#), [2007\(1\)](#)

2) Board-approved education technology standards and population(s) that must meet the standards.

STANDARDS (Check ALL that apply)

<a href="#">439</a>	<a href="#">84%</a>	Locally-developed
<a href="#">185</a>	<a href="#">35%</a>	Adopted National Educational Technology Standards (ISTE)
<a href="#">51</a>	<a href="#">9%</a>	Adopted Standards for Technological Literacy: Content for the Study of Technology (ITEA)
<a href="#">25</a>	<a href="#">5%</a>	Other: <a href="#">6=Show-Me Standards</a>
<a href="#">40</a>	<a href="#">7%</a>	None

POPULATIONS (Check ALL that apply)

Students:			Staff:		
<a href="#">449</a>	<a href="#">86%</a>	PreK-2	<a href="#">426</a>	<a href="#">81%</a>	Administrators
<a href="#">464</a>	<a href="#">89%</a>	3-5	<a href="#">434</a>	<a href="#">83%</a>	Teachers
<a href="#">473</a>	<a href="#">91%</a>	6-8	<a href="#">383</a>	<a href="#">73%</a>	Support services staff
<a href="#">403</a>	<a href="#">77%</a>	9-12	<a href="#">89</a>	<a href="#">17%</a>	None
<a href="#">58</a>	<a href="#">100%</a>	Area career center (N=58)			
<a href="#">41</a>	<a href="#">8%</a>	None			

3) Estimated total FTE of district-level staff directly responsible for technical maintenance and support of hardware.

EMPLOYEES (FTE)

	Total	Bldg.	Percent	Average	Median
District Technology Staff	<a href="#">1089.55</a>	<a href="#">493</a>	<a href="#">94%</a>	<a href="#">2.21</a>	<a href="#">1.0</a>
None		<a href="#">31</a>	<a href="#">6%</a>		
NON-EMPLOYEES (Contracted Hours)					
	Total	Bldg.	Percent	Average	Median
Vendor/contractor	<a href="#">31131.00</a>	<a href="#">156</a>	<a href="#">30%</a>	<a href="#">199.56</a>	<a href="#">55</a>
None		<a href="#">368</a>	<a href="#">70%</a>		

4) District-supported administrative systems. (Check ALL that apply)

<a href="#">517</a>	<a href="#">99%</a>	Accounting/budgeting/payroll	<a href="#">431</a>	<a href="#">82%</a>	Grade book	<a href="#">498</a>	<a href="#">95%</a>	Student attendance
<a href="#">301</a>	<a href="#">57%</a>	Classroom website hosting	<a href="#">402</a>	<a href="#">77%</a>	Health Service	<a href="#">243</a>	<a href="#">46%</a>	Student fees
<a href="#">489</a>	<a href="#">93%</a>	Communication/email	<a href="#">184</a>	<a href="#">35%</a>	Human resources	<a href="#">365</a>	<a href="#">70%</a>	Student performance
<a href="#">388</a>	<a href="#">74%</a>	Course scheduling	<a href="#">401</a>	<a href="#">77%</a>	IEP management	<a href="#">166</a>	<a href="#">32%</a>	Teacher evaluations
<a href="#">420</a>	<a href="#">80%</a>	Discipline	<a href="#">149</a>	<a href="#">28%</a>	Instructional management	<a href="#">302</a>	<a href="#">58%</a>	Technical support
<a href="#">212</a>	<a href="#">41%</a>	Distance education	<a href="#">313</a>	<a href="#">60%</a>	Inventory	<a href="#">235</a>	<a href="#">45%</a>	Transportation
<a href="#">211</a>	<a href="#">40%</a>	Extra curricular scheduling	<a href="#">491</a>	<a href="#">94%</a>	Library catalog	<a href="#">0</a>	<a href="#">0%</a>	None
<a href="#">451</a>	<a href="#">86%</a>	Food Service	<a href="#">123</a>	<a href="#">24%</a>	School safety			

5) All buildings in district are connected through a wide or local area network [484 / 92%](#) =Yes [40 / 8%](#) =No

6) Core content area(s) in which technology is integrated. (Check ALL that apply)

[512 / 98%](#) =Communication Arts [481 / 92%](#) =Mathematics [494 / 94%](#) =Science [483 / 92%](#) =Social Studies

7) Estimated percentage of following populations with district-provided email accounts.

[Number of districts, Percent of all districts, Median percentage rate of accounts for responding districts]

8)	STUDENTS:			STAFF:				
	<u>9</u>	<u>2%</u>	<u>100%</u>	PreK-2	<u>508</u>	<u>97%</u>	<u>100%</u>	Administrators
	<u>31</u>	<u>6%</u>	<u>85%</u>	3-5	<u>498</u>	<u>95%</u>	<u>100%</u>	Teachers
	<u>54</u>	<u>10%</u>	<u>95%</u>	6-8	<u>482</u>	<u>92%</u>	<u>100%</u>	Support Services Staff
	<u>111</u>	<u>21%</u>	<u>30%</u>	9-12	<u>16</u>	<u>3%</u>	-	None
	<u>397</u>	<u>76%</u>	-	None				

- 9) Estimated percentage of district 8<sup>th</sup> graders who are technologically literate. [Median = 90%](#)
- 10) Amount budgeted for technology for current year. [N = 524 with 10 districts reporting \$0.00]  
[Total = \\$110,929,735](#) [Average = \\$211,980](#) [Median = \\$50,000](#)
- 11) Dollar value of district E-rate discount for current year (per funding commitment decision letters). [N = 404 districts]  
[Total = \\$25,326,100](#) [Average = \\$62,688](#) [Median = \\$10,631](#)
- 12) Estimated percentage of E-rate discount used to support education technology. [Median = 97%](#)

**Missouri Census of Technology**

**Building Level Census Form (2006)**

Complete this census form to reflect school building technology status as of **March 1**.

It is recommended that you make a copy of the completed census for your files.

Consult the Core Data Manual and [Help](#) file, call (573) 751-8247, or e-mail: [instrtech@dese.mo.gov](mailto:instrtech@dese.mo.gov) for assistance as needed.

**N = 2229**

**PLANNING**

- 1) Type of school building technology plan: 164 / 7% Stand-alone plan 2026 / 91% Integrated in district plan 19 / 1% Do not have building plan

**TRAINING**

- 1) Estimated percentage of faculty/staff in school building at each skill level of technology use.

Faculty/Staff	Beginner		Intermediate		Advanced		Total	
	Total	%	Total	%	Total	%	Total	%
Administrator(s)	<u>17512</u>	<u>8%</u>	<u>145389</u>	<u>67%</u>	<u>55260</u>	<u>25%</u>	<u>218161</u>	<u>100%</u>
Teachers	<u>39560</u>	<u>18%</u>	<u>130135</u>	<u>60%</u>	<u>48509</u>	<u>22%</u>	<u>218204</u>	<u>100%</u>
Technology Support Staff	<u>3384</u>	<u>2%</u>	<u>32028</u>	<u>15%</u>	<u>175090</u>	<u>83%</u>	<u>210502</u>	<u>100%</u>
Support Services Staff	<u>67399</u>	<u>31%</u>	<u>111038</u>	<u>51%</u>	<u>38546</u>	<u>18%</u>	<u>216983</u>	<u>100%</u>

- 2) Number of teachers in school building participating in education technology-related professional development (including eMINTS).

	# of Buildings	# of Teachers	Average Per Building	Average All Buildings
Completed less than 15 hours	<u>1717</u>	<u>35652</u>	<u>20.76</u>	<u>15.99</u>
Completed 15 to 30 hours	<u>870</u>	<u>8557</u>	<u>98.36</u>	<u>39.38</u>
Completed more than 30 hours	<u>622</u>	<u>3368</u>	<u>5.41</u>	<u>1.51</u>
<b>TOTAL</b>	<u>2229</u>	<u>47577</u>	<u>-----</u>	<u>21.34</u>

- a. Number of eMINTS-trained teachers in school building, by training type.

	None	Completed Year 1 Only		Completed both Year 1 & 2		Total Teachers
		Teachers	Buildings	Teachers	Buildings	
Comprehensive eMINTS for Teachers	<u>1783 Buildings</u>	<u>423</u>	<u>162</u>	<u>831</u>	<u>297</u>	<u>1254</u>
Comprehensive eMINTS for Education Technology Specialists	<u>2003 Buildings</u>	<u>71</u>	<u>31</u>	<u>82</u>	<u>57</u>	<u>153</u>
Other two-year eMINTS staff development programs	<u>2016 Buildings</u>	<u>179</u>	<u>43</u>	<u>74</u>	<u>30</u>	<u>253</u>

**HARDWARE AND SUPPORT**

- 1) Estimated total FTE of school building staff or total hours of others directly responsible for technical maintenance and/or support of hardware.

EMPLOYEES	Total	Bldg.	Percent	FTE	NON-EMPLOYEES				
					Total	Bldg.	Percent	Hours Worked	
District staff	<u>5770.24</u>	<u>1778</u>	<u>80%</u>	<u>3.25</u>	Students	<u>26857.14</u>	<u>208</u>	<u>9%</u>	<u>129.12</u>
School certificated staff	<u>929.94</u>	<u>696</u>	<u>31%</u>	<u>1.34</u>	Parents/community members	<u>490.25</u>	<u>23</u>	<u>1%</u>	<u>21.32</u>
School non-certificated staff	<u>637.61</u>	<u>594</u>	<u>27%</u>	<u>1.07</u>	Vendors/contractors	<u>40119.25</u>	<u>596</u>	<u>27%</u>	<u>67.31</u>
None	<u>108</u>	<u>5%</u>			None	<u>1465</u>	<u>66%</u>		
	<b>[Overall Average: 1.89]</b>					<b>[Overall Average: 72.58]</b>			

- 2) Computers by type and location within school building.

COMPUTER PLATFORM	COMPUTER LABS	PreK-2	INSTRUCTIONAL ROOMS				ACC	LIBRARY CENTERS	ADMIN. OFFICES	TOTAL
			3-5	6-8	9-12					
<b>APPLE/MAC</b>										
LC series and lower	<u>692</u>	<u>713</u>	<u>486</u>	<u>124</u>	<u>119</u>	<u>24</u>	<u>121</u>	<u>16</u>	<u>2295</u>	
Power Mac series	<u>558</u>	<u>713</u>	<u>552</u>	<u>429</u>	<u>312</u>	<u>64</u>	<u>153</u>	<u>56</u>	<u>2837</u>	
G3	<u>6338</u>	<u>3486</u>	<u>3808</u>	<u>3510</u>	<u>2728</u>	<u>206</u>	<u>1711</u>	<u>692</u>	<u>22479</u>	
G4 or later	<u>7600</u>	<u>1862</u>	<u>2702</u>	<u>1632</u>	<u>2509</u>	<u>321</u>	<u>1569</u>	<u>790</u>	<u>18985</u>	
Sub-Total	<u>15188</u>	<u>6774</u>	<u>7548</u>	<u>5695</u>	<u>5668</u>	<u>615</u>	<u>3554</u>	<u>1554</u>	<u>46596</u>	

PC COMPATIBLE									
486 or earlier	<u>201</u>	<u>345</u>	<u>365</u>	<u>176</u>	<u>317</u>	<u>30</u>	<u>147</u>	<u>81</u>	<u>1662</u>
Pentium I or II	<u>5118</u>	<u>3878</u>	<u>4257</u>	<u>3921</u>	<u>5431</u>	<u>527</u>	<u>2325</u>	<u>1270</u>	<u>26727</u>
Pentium III	<u>15099</u>	<u>5892</u>	<u>8063</u>	<u>7729</u>	<u>10666</u>	<u>1376</u>	<u>4268</u>	<u>3744</u>	<u>56837</u>
Pentium IV or later	<u>45218</u>	<u>10088</u>	<u>16454</u>	<u>12927</u>	<u>22917</u>	<u>3768</u>	<u>9800</u>	<u>11380</u>	<u>132552</u>
Celeron	<u>10364</u>	<u>3610</u>	<u>5277</u>	<u>4601</u>	<u>5479</u>	<u>634</u>	<u>2564</u>	<u>2040</u>	<u>34569</u>
AMD (under 450 MHz)	<u>4374</u>	<u>1017</u>	<u>1970</u>	<u>1130</u>	<u>2563</u>	<u>302</u>	<u>1020</u>	<u>916</u>	<u>13292</u>
AMD (450+ MHz)	<u>751</u>	<u>394</u>	<u>563</u>	<u>456</u>	<u>591</u>	<u>42</u>	<u>272</u>	<u>179</u>	<u>3248</u>
Sub-Total	<u>81125</u>	<u>25224</u>	<u>36949</u>	<u>30940</u>	<u>47964</u>	<u>6679</u>	<u>20396</u>	<u>19610</u>	<u>268887</u>
Total Mac/PC	<u>96313</u>	<u>31998</u>	<u>44497</u>	<u>36635</u>	<u>53632</u>	<u>7294</u>	<u>23950</u>	<u>21164</u>	<u>315483</u>
HANDHELDS	<u>899</u>	<u>1155</u>	<u>3912</u>	<u>2222</u>	<u>2375</u>	<u>195</u>	<u>290</u>	<u>1527</u>	<u>12575</u>
TOTAL	<u>97212</u>	<u>33153</u>	<u>48409</u>	<u>38857</u>	<u>56007</u>	<u>7489</u>	<u>24240</u>	<u>22691</u>	<u>328058</u>

3) Number of Internet connected computers and multimedia equipped computers by location and type of connection.

Computer type and Connection type	Computer Labs		Instructional Rooms				ACC	Library/Media Centers	Admin. Offices	Total
	PreK-2	3-5	6-8	9-12	ACC					
MULTIMEDIA EQUIPPED	<u>92477</u>	<u>28356</u>	<u>41014</u>	<u>32917</u>	<u>47293</u>	<u>5893</u>	<u>21829</u>	<u>19798</u>	<u>289547</u>	
INTERNET CONNECTED	<u>93313</u>	<u>29029</u>	<u>43228</u>	<u>35760</u>	<u>51025</u>	<u>6532</u>	<u>23330</u>	<u>21183</u>	<u>303400</u>	
WIRED CONNECTION										
Desktop	<u>80221</u>	<u>26105</u>	<u>36951</u>	<u>31916</u>	<u>45084</u>	<u>5561</u>	<u>19903</u>	<u>18103</u>	<u>263844</u>	
Laptop	<u>1208</u>	<u>534</u>	<u>1084</u>	<u>707</u>	<u>1518</u>	<u>183</u>	<u>431</u>	<u>1369</u>	<u>7034</u>	
Handheld	<u>93</u>	<u>308</u>	<u>490</u>	<u>323</u>	<u>106</u>	<u>18</u>	<u>15</u>	<u>192</u>	<u>1545</u>	
WIRELESS CONNECTION										
Desktop	<u>1384</u>	<u>288</u>	<u>947</u>	<u>298</u>	<u>601</u>	<u>230</u>	<u>367</u>	<u>205</u>	<u>4320</u>	
Laptop	<u>8821</u>	<u>924</u>	<u>2213</u>	<u>1948</u>	<u>2578</u>	<u>292</u>	<u>1973</u>	<u>706</u>	<u>19455</u>	
Handheld	<u>148</u>	<u>36</u>	<u>270</u>	<u>229</u>	<u>342</u>	<u>12</u>	<u>125</u>	<u>436</u>	<u>1598</u>	

4) Technology by type and location within school building.

NUMBER OF ROOMS...	LABS		INSTRUCTIONAL ROOMS				ACC	LMCs	ADMIN.	TOTAL
	PreK-2	3-5	6-8	9-12	ACC					
total	<u>4305</u>	<u>12877</u>	<u>12988</u>	<u>14200</u>	<u>17231</u>	<u>640</u>	<u>2164</u>	<u>10471</u>	<u>75793</u>	
• with telephone access	<u>2516</u>	<u>7358</u>	<u>7344</u>	<u>7939</u>	<u>11130</u>	<u>486</u>	<u>1822</u>	<u>9938</u>	<u>49105</u>	
• with Internet access (wired or wireless)	<u>4230</u>	<u>12567</u>	<u>12800</u>	<u>13285</u>	<u>16884</u>	<u>633</u>	<u>2117</u>	<u>10192</u>	<u>73698</u>	
• with one or more multimedia-equipped computers	<u>4096</u>	<u>11997</u>	<u>12247</u>	<u>12182</u>	<u>15935</u>	<u>603</u>	<u>2023</u>	<u>9360</u>	<u>69284</u>	
• with one or more multimedia-equipped computers connected to Internet	<u>4017</u>	<u>11784</u>	<u>11996</u>	<u>12052</u>	<u>15524</u>	<u>602</u>	<u>1968</u>	<u>9231</u>	<u>67965</u>	
• with one or more multimedia-equipped and Internet-connected computers and access to a printer, and a dedicated projection device	<u>2560</u>	<u>3311</u>	<u>4556</u>	<u>3691</u>	<u>5119</u>	<u>244</u>	<u>959</u>	<u>1228</u>	<u>21889</u>	

5) Estimated typical (average) timeframe for resolving minor or routine technical problems/repairs.

<u>801</u>	<u>36%</u>	1 working day	<u>227</u>	<u>10%</u>	4-6 working days	<u>37</u>	<u>2%</u>	11 working days or more
<u>1000</u>	<u>45%</u>	2-3 working days	<u>66</u>	<u>3%</u>	7-10 working days			

6) Estimated percentage of computers in working order on a typical (average) day Median = 98%.

### INTERNET CONNECTIVITY- DISTANCE LEARNING

1) School building Internet connection by bandwidth and delivery mode.

BANDWIDTH:		DELIVERY MODE:	
<u>52</u>	<u>2%</u>	56kb – 384 kb	<u>778</u> <u>35%</u> Copper line
<u>1255</u>	<u>56%</u>	385kb – 1.5mb (T1)	<u>1115</u> <u>50%</u> Fiber
<u>426</u>	<u>19%</u>	1.6mb – 9.9mb	<u>68</u> <u>3%</u> DSL
<u>144</u>	<u>6%</u>	10mb – 45mb	<u>8</u> <u>&lt;1%</u> Satellite
<u>161</u>	<u>7%</u>	45mb – 100mb	<u>209</u> <u>9%</u> Other:
<u>169</u>	<u>8%</u>	>100mb	<u>33</u> <u>1%</u> None
<u>4</u>	<u>&lt;1%</u>	None	

2) Estimated percentage of computers connected to school building LAN (or district WAN) Median = 100%

3) Distance learning system(s) available to students in school building. (Check ALL that apply)

<u>434</u>	<u>19%</u>	I-TV: two-way interactive (audio and video) television	<u>111</u>	<u>5%</u>	Other
<u>265</u>	<u>12%</u>	Desktop video conferencing: two-way interactive	<u>510</u>	<u>23%</u>	None
<u>807</u>	<u>36%</u>	Web-based online instruction via Internet: non-interactive			
<u>405</u>	<u>18%</u>	Satellite: one-way instructional video			
<u>1191</u>	<u>53%</u>	Cable TV: one-way instructional video			

### TECHNOLOGY USAGE

1) Estimated percentage of administrators, teachers, and students routinely using following applications.

Application	Administrators		Teachers		Students	
Educational Software	<u>99136</u>	<u>44%</u>	<u>170144</u>	<u>76%</u>	<u>177115</u>	<u>79%</u>
Email	<u>217164</u>	<u>97%</u>	<u>209550</u>	<u>94%</u>	<u>25576</u>	<u>11%</u>
Electronic Resources:						
EBSCO host	<u>34663</u>	<u>16%</u>	<u>50714</u>	<u>23%</u>	<u>48032</u>	<u>22%</u>
Electronic encyclopedia	<u>31771</u>	<u>14%</u>	<u>67815</u>	<u>30%</u>	<u>74923</u>	<u>34%</u>
Gale	<u>7569</u>	<u>3%</u>	<u>12390</u>	<u>6%</u>	<u>13589</u>	<u>6%</u>
Newsbank	<u>10711</u>	<u>5%</u>	<u>15655</u>	<u>7%</u>	<u>15187</u>	<u>7%</u>
ProQuest	<u>3692</u>	<u>2%</u>	<u>7091</u>	<u>3%</u>	<u>7304</u>	<u>3%</u>
SIRS	<u>4950</u>	<u>2%</u>	<u>8678</u>	<u>4%</u>	<u>10090</u>	<u>5%</u>

2) Estimated percentage of administrators, teachers, and students routinely using computers for following functions.

Function	Administrators		Teachers		Students	
Produce media, web, or multimedia products to demonstrate learning, make presentations	<u>126171</u>	<u>57%</u>	<u>114740</u>	<u>51%</u>	<u>95608</u>	<u>43%</u>
Produce written or print products to demonstrate learning, make presentations	<u>179432</u>	<u>80%</u>	<u>178729</u>	<u>80%</u>	<u>132875</u>	<u>60%</u>
Communicate with peers, experts, others	<u>211593</u>	<u>95%</u>	<u>195218</u>	<u>88%</u>	<u>46813</u>	<u>21%</u>
Communicate with parents and students	<u>184842</u>	<u>83%</u>	<u>164630</u>	<u>74%</u>	<u>27738</u>	<u>12%</u>
Conduct online research	<u>180598</u>	<u>81%</u>	<u>169465</u>	<u>76%</u>	<u>124128</u>	<u>56%</u>
Participate in online courses (this year)	<u>23900</u>	<u>11%</u>	<u>26592</u>	<u>12%</u>	<u>5128</u>	<u>2%</u>
Manage student records (spreadsheet/database)	<u>188529</u>	<u>85%</u>	<u>170165</u>	<u>76%</u>	-	-
Track student performance	<u>186657</u>	<u>84%</u>	<u>171114</u>	<u>77%</u>	-	-
Assess student performance	<u>165990</u>	<u>74%</u>	<u>159435</u>	<u>72%</u>	-	-
Deliver and present instruction	<u>82250</u>	<u>37%</u>	<u>133571</u>	<u>60%</u>	-	-
Prepare lesson plan(s)	<u>25021</u>	<u>11%</u>	<u>151627</u>	<u>68%</u>	-	-

3) Estimated total FTE of staff or total hours of others directly responsible for integration of technology into curriculum and instruction.

EMPLOYEES				NON-EMPLOYEES					
	Total	Bldg.	Percent	FTE		Total	Bldg.	Percent	Hours Worked
Instructional tech. specialist	<u>1108.85</u>	<u>767</u>	<u>34%</u>	<u>1.45</u>	Students	<u>4112</u>	<u>49</u>	<u>2%</u>	<u>83.92</u>
Library/media specialist	<u>2476.05</u>	<u>1348</u>	<u>60%</u>	<u>1.83</u>	Regional center/RPDC	<u>1909</u>	<u>97</u>	<u>4%</u>	<u>19.68</u>
School administrator	<u>2884.39</u>	<u>1205</u>	<u>54%</u>	<u>2.39</u>	Other (specify)	<u>3134</u>	<u>81</u>	<u>4%</u>	<u>39.69</u>
Teacher	<u>18427.70</u>	<u>1219</u>	<u>55%</u>	<u>15.12</u>	None		<u>1997</u>	<u>90%</u>	
School technical staff	<u>715.50</u>	<u>473</u>	<u>21%</u>	<u>1.51</u>					
District technical staff	<u>2189.33</u>	<u>1197</u>	<u>54%</u>	<u>1.83</u>					
Other		<u>222</u>	<u>10%</u>						
None		<u>108</u>	<u>5%</u>						

[Overall Average FTE = 1.8] (4.02 including teacher)

[Overall Average = 47.43]

4) Estimated percentage of teaching staff fully integrating technology into curriculum and instruction. Median = 50%

5) School (or district) supported technology-mediated feedback. (Check ALL that apply)

<u>471</u>	<u>21%</u>	Automated absentee calling system	<u>360</u>	<u>16%</u>	Listservs
<u>375</u>	<u>17%</u>	Electronic bulletin board	<u>1196</u>	<u>54%</u>	Voice Mail
<u>2136</u>	<u>96%</u>	Email	<u>543</u>	<u>24%</u>	Other (specify):
<u>319</u>	<u>14%</u>	Homework hotline via web	<u>51</u>	<u>2%</u>	None
<u>294</u>	<u>13%</u>	Homework hotline via telephone			

**Cross Reference of 2005 COT Items and 2002-2006 METSP Goals and Objectives,  
by METSP Goal**

<b>METSP Goal and Objective</b>	<b>COT Item</b>
<b>1. Student Learning</b>	
a. State Board endorses/adopts student technology standards	NA
b. Districts establish/endorse student technology standards	District 2
c. Students will be technologically literate by end of eighth grade	District 8
d. Students routinely use Web and educational software	Building 14
e. Students routinely use technology to conduct research and produce products	Building 15
f. Sample of eMINTS student will score satisfactory or above on the MAP reading test	NA
g. 5% fewer of eMINTS sample students will score in Step 1 or Progressing on the MAP annually	NA
h. eMINTS sample students in special categories will perform better, on average, on the MAP than non-eMINTS students	NA
i. High schools will provide courses via distance learning	NA
<b>2. Teacher Preparation</b>	
a. State Board establishes or endorses teacher technology standards	NA
b. Districts establish/endorse teacher technology standards	District 2
c. Districts integrate technology into the core curriculum areas	District 6
d. Teachers possess intermediate or advanced technology skills	Building 2
e. Teachers routinely use Web and educational software	Building 14
f. Teachers routinely use technology to conduct research, prepare lessons, assess and manage student data, produce presentations and deliver instruction	Building 15
g. Teachers fully integrate technology in curriculum and instruction	Building 17
h. Elementary buildings will have at least 2 eMINTS trained teachers	Building 4
<b>3. Administration/Management</b>	
a. State Board establishes or endorses administrator technology standards	NA
*Districts establish/endorse administrator technology standards <Added 2003>	District 2
b. Districts have state-approved technology plans, tied to CSIPs, address all TFAs, promote PD, and make use of E-rate	District 1, 10, 11
c. Districts partner with business / higher education to help with technology planning, implementation or evaluation	Deleted 2005
d. Building administrators possess intermediate or advanced technology skills	Building 2
e. Districts provide email accounts to administrators, teachers, and support staff	District 7 & 4
f. Building administrators routinely use Web and education software	Building 14 & 15
g. Principals routinely use technology for data management, assess and track student performance, communicate with others	Building 15
h. Buildings have technology- mediated feedback system(s)	Building 18
<b>4. Equitable Access</b>	
a. Districts maintain adequate LAN, connected to Internet	District 5
b. Buildings are connected to district LAN/WAN, connected to Internet, providing web and email services	District 5
c. Buildings have video conferencing and/or multimedia distribution system	Building 13
d. Classrooms are equipped with full teacher workstations and Internet-connected computers at 2:1 ratio of computers to students	Building 5, 6, 8
<b>5. Technical Support</b>	
a. Districts employ/contract technical staff	District 3
b. Buildings have on-site technical support (both technical and instructional)	Building 5, 16
*Buildings have technical problems/repairs fixed in 3 working days <added 2004>	Building 10,

## Appendix B

### Cross Reference of 2005 COT Items and METSP Goals and Objectives, by COT Item

<b>District Census</b>	<b>METSP Goal</b>
1. Year technology plan approved by state	3.a.
2. Board-approved education technology standards, by kind and population	1.b., 2.b.
3. District staff responsible for technical maintenance and support	5.a.
4. District-supported administrative systems	3.e.
5. District building(s) and administrative office(s) networking	4.b.
6. Core curriculum areas where technology is integrated	2.c.
7. District-provided email accounts, by user type and [student] grade levels	3.c.
8. Percent eighth-graders technologically literate	1.c.
9. Technology budget for current year	3.b.
10. E-rate discount amount for current year	3.b.
11. Percent E-rate discount budgeted back into education technology	3.b.

<b>School Building Census</b>	<b>METSP Goal</b>
<b>Technology Planning</b>	
1. Building technology plan status (stand-alone or part of district plan)	NA
<b>Technology Professional Development</b>	
2. Technology skill levels of building administrators, faculty, technical, and support staff	2.d., 3.d.
3. Number of teachers receiving education technology-related professional development (including eMINTS training)	2.a.-d.
4. Number eMINTS-trained teachers	2.h.
<b>Hardware And Support</b>	
5. Building-level staff responsible for technical maintenance	5.b.
6. Number computers in building, by type and location	4.d.
7. Number Internet-connected computers multimedia-equipped computers by type of computer and type of connection	4.d.
8. Equipment located in instructional rooms, by type of equipment and room	4.d.
9. Typical timeframe for resolving routine/minor technical problems and repairs	5.b.
10. Percent computers in working order on a typical day	5.b.
<b>Internet Connectivity / Distance Learning</b>	
11. Internet connection bandwidth	4.a.
12. Percent computers connected to building and/or district network	4.b.
13. Distance learning system(s) available in building	1.i.
<b>Technology Usage</b>	
14. Percent administrators, teachers and students routinely using education technologies	1.d., 2.e., 3.f.
15. Percent administrators, teachers, and students routinely using technology functions	1.e., 2.f., 3.g.
16. Building-level staff responsible for leadership in integrating technology into curriculum	2.c., 5.b.
17. Percent of teaching staff fully integrating technology into curriculum and instruction	2.c., 2.g.
18. Technology-mediated feedback system used in the building (or via district)	3.h.