

**Massachusetts Title II-D  
Technology Enhancement Competitive Grants  
(Fund Code 170A)**

**2003-2005 Final Report**

**January 2006**

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## Introduction: Purpose, Eligibility and Awards

Funded through Title II-D of the No Child Left Behind Act, the Massachusetts Department of Education's Technology Enhancement Competitive grant program (fund code 170<sup>1</sup>) supports school districts in the development of two-year sustainable projects that

- improve student academic achievement through the use of technology;
- assist every student - regardless of race, ethnicity, income, geographical location, or disability - in becoming technologically literate; and
- provide high quality professional development that uses research-based instructional strategies to integrate technology effectively into instruction.

Eligibility is limited to "high-need local educational agencies" or partnerships including one or more high-need districts. (See appendix for the FY 2004 Title II-D high need criteria and a list of high need districts.) The Department received 96 proposals for new projects to begin in the 2003-04 school year. Total requests were in excess of \$9.4 million.

Grants were awarded to LEAs in the amount requested up to \$200,000. Those districts with private schools, were awarded an additional sum to meet the federal requirement that private schools be offered the opportunity for equitable participation in federally funded programs. This amount was calculated based on student populations in the private and public schools.

Of the proposals received, 23 partnerships were funded providing support to 77 districts, private schools, higher education institutions, and public or private organizations. Each of the partnerships included at least one school district classified as high-need. Total awards were in excess of \$4.99 million with individual awards ranging from \$151,200 to \$258,363. Table 1 provides an overview of the awards. Brief descriptions of each grant can be found at [http://www.doe.mass.edu/edtech/grants/fy04/fc\\_170b.html](http://www.doe.mass.edu/edtech/grants/fy04/fc_170b.html) .

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<sup>1</sup> In their first year, projects are funded under Fund Code 170B. Continuation grants for projects' second year are funded under Fund Code 170A. A copy of the FY 2004 RFP for Fund Code 170B can be found at <http://finance1.doe.mass.edu/Grants/grants04/rfp/170B.html>

Table 1: Awards for Two Years of the Fund Code 170 Grants Begun in FY 2004

Recipient	Amount	Recipient	Amount
ACCEPT Education Collaborative	\$199,855	Greenfield Public Schools	\$239,256
Ashland Public Schools	\$210,326	Hampshire Education Collaborative	\$200,000
Barnstable Public Schools	\$226,418	Hudson Public Schools	\$276,870
Benjamin Banneker Charter School	\$151,200	Marlborough Public Schools	\$221,850
Boston Public Schools	\$237,090	Orange Public Schools	\$199,416
Boston Renaissance Charter School	\$200,000	Pathfinder Regional Vocational Technical High School	\$200,000
Cambridge Public Schools	\$254,192	Pittsfield Public Schools	\$221,188
Chelsea Public Schools	\$207,585	Plymouth Public Schools	\$200,789
Fitchburg Public Schools	\$240,994	Springfield Public Schools	\$208,759
Freetown-Lakeville Regional School District	\$199,960	Webster Public Schools	\$258,363
Gateway Regional School District	\$200,000	Worcester Public Schools	\$237,116
Gill-Montague Regional School District	\$199,987		

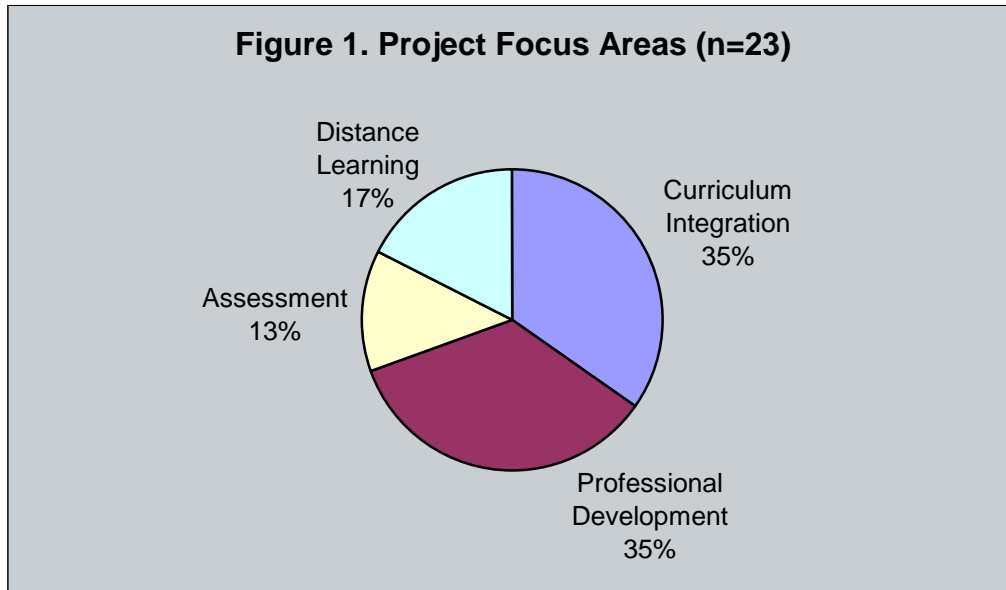
## Project Focus Areas

Each grant addressed one of the following areas:

- *Curriculum Integration:* developing and implementing effective technology-integrated courses and curricula that align with the Massachusetts Curriculum Frameworks and are designed to help students reach challenging academic standards and become technologically literate;
- *Systemic Professional Development:* implementing a successful systemic professional development program that includes all the following:
  - prepares teams of teachers to use technology effectively to teach the content of the curriculum;
  - prepares teachers/administrators in schools to be technology leaders who will assist other teachers/administrators; and
  - prepares principals and administrators to support teachers using technology to teach the content of the curriculum;
- *Assessment:* assessing the impact of the use of technology in teaching and learning OR using technology for assessment, data gathering, and analysis to inform and enhance teaching and school improvement; and
- *Online Distance Learning:* Using innovative strategies for the delivery of specialized or rigorous courses and curricula through the use of online distance learning technologies, particularly content areas that would not otherwise have access to such courses or curricula due to geographical distances or insufficient resources.

The distribution of the focus areas among the grants is given in Figure 1. Two categories made up 70% of the grant projects: curriculum integration (8 projects, 35% of the total) and professional

development (also 8 projects, 35% of the total). The remaining 30% were projects for distance learning (4 projects, 17%) and assessment (3 projects, 13%).

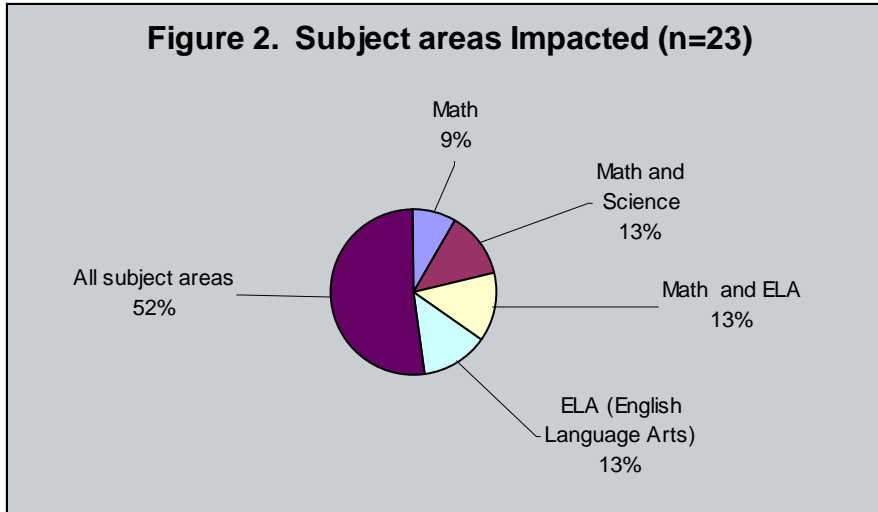


## Core Subject Areas and Grade Levels

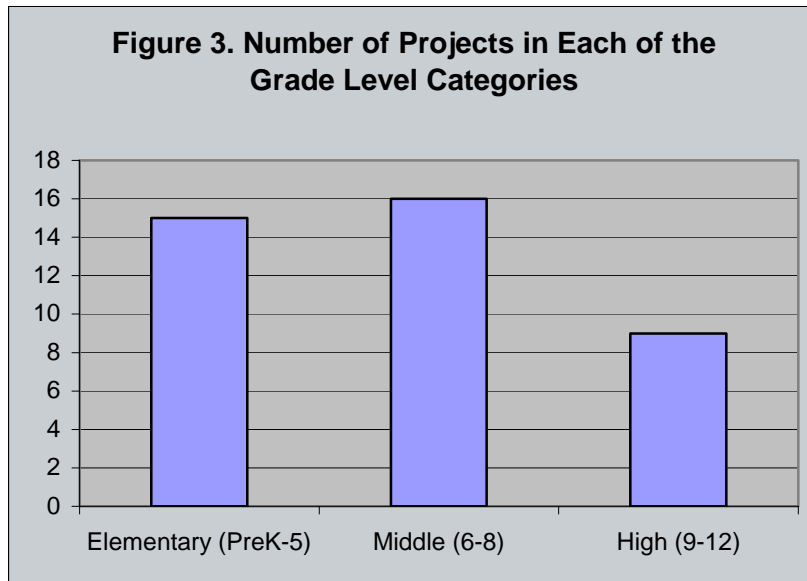
Figure 2 shows the distribution of the grant awards by subject area. Slightly more than half of the grants (52%) impacted multiple disciplines. The remaining grants emphasized mathematics and English language arts. Math was a focus of 35% of the projects, with 9% of projects addressing math alone, 13% addressing math and science, and 13% addressing math and English language arts. English language arts (ELA) was a focus of 26% of the projects, with 13% of projects targeting ELA alone and 13% of projects targeting ELA and mathematics.

The project focus areas correlated with the subjects addressed as follows:

- All four of the grants for online distance learning involved more than two subject areas.
- Six of the curriculum integration projects targeted math and/or English language arts, two were interdisciplinary.
- The three assessment projects were aimed at English language arts and mathematics.
- Six of the eight professional development grants addressed more than one curriculum areas; two of these were specifically for mathematics and science.



The majority of the grants, 19, addressed the K to 8 grades or a subset of this range. Figure 3 shows the data grouped into High (9-12), Middle (6-8), and Elementary (PreK-5) levels, which is consistent with those grade ranges used by the US Department of Education in reports related to No Child Left Behind. The grade-level categories consist of 15, 16 and 9 projects at the elementary, middle and high school levels, respectively. Twelve projects span more than one grade category, hence these total more than 23.



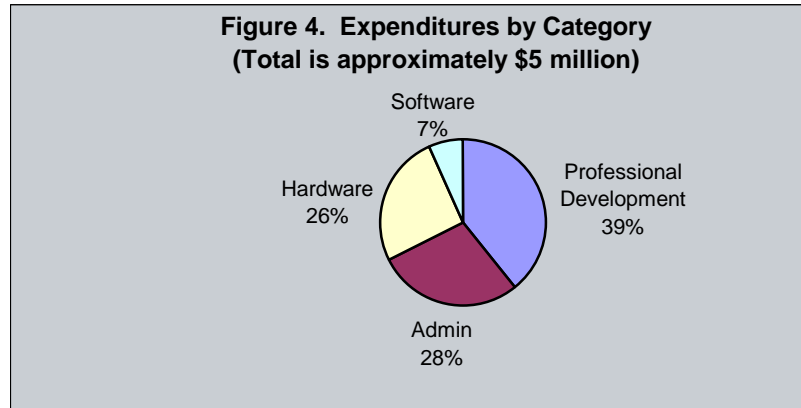
A closer examination of the grade level distribution by focus area shows:

- All four of the distance learning projects had a direct or indirect impact at the high school level; three of these included online professional development for staff that covered all grades.
- 75% of the technology integration projects impacted students at the middle school level. One of the integration grants specifically addressed the special needs population with assistive technology from Pre-K through 12.
- Four of the eight projects with a focus on professional development were for both elementary and middle schools, two were elementary school only and two were middle school only. One professional development grant did include staff representing all grade levels.
- The projects that focused on assessment covered multiple grade level categories.

## **Budget and Expenditures**

During the two-year period of this grant from September 1, 2003 through August 31 2005, approximately \$5 million was awarded for 23 technology projects. Final reports were submitted in a survey in the Department's Massachusetts Online Network for Education (MassONE). This online template was available from August 31<sup>st</sup> through September 26<sup>th</sup>. At that time final accountant data was not complete by all district business offices, therefore the expenditures reported are estimates of the grantees. Hence, the dollar figures in this report are rounded.

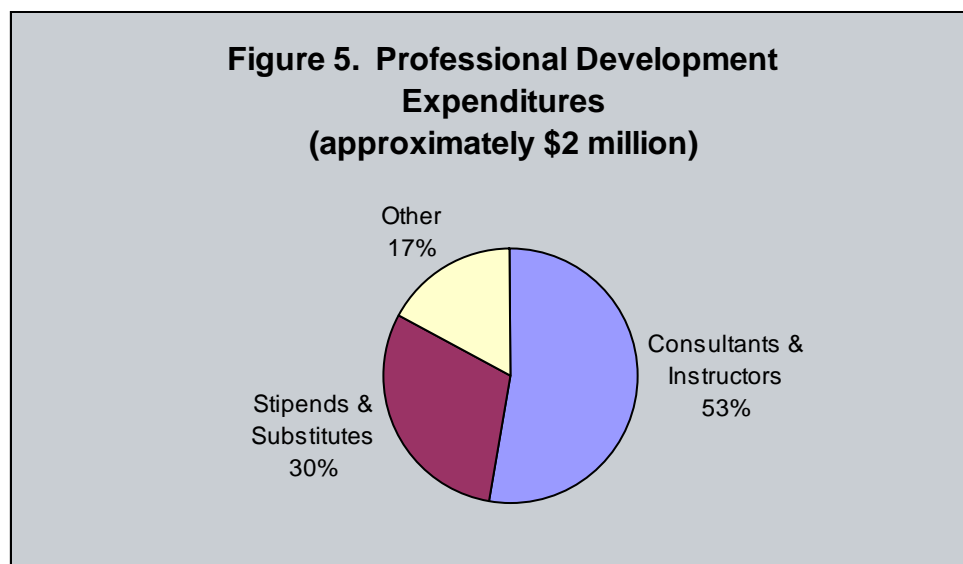
The expenditures were broken out by category, as shown in Figure 4. Clearly the greatest amount of money was spent on professional development, approximately \$2 million. This accounts for 39% to 40 % of the total grant funds and exceeds the federal guidelines, which specify of a minimum of 25%. Administrative costs, including project evaluation, were 28%, about \$1.48 million. Technology hardware and software accounted for the remaining third of the expenditures, with hardware at 26%. The software was the smallest category with only \$350,000 or 7%.



### Professional Development Expenditures

On average, each grant project included close to \$90,000 for professional development. These were for instructors and consultants, stipends and substitutes, training programs, materials, graduate credit, private school participation, and honoraria. As shown in Figure 5, subcategories break down as follows:

- 53% was used for consultants and instructors, slightly more than \$1 million.
- 30% was used for stipends and substitutes, allowing teachers to attend professional development activities during the school day.
- The remaining 17% covered other expenses for private school participation, training programs and materials, graduate credits, and so on.



## Hardware and Software

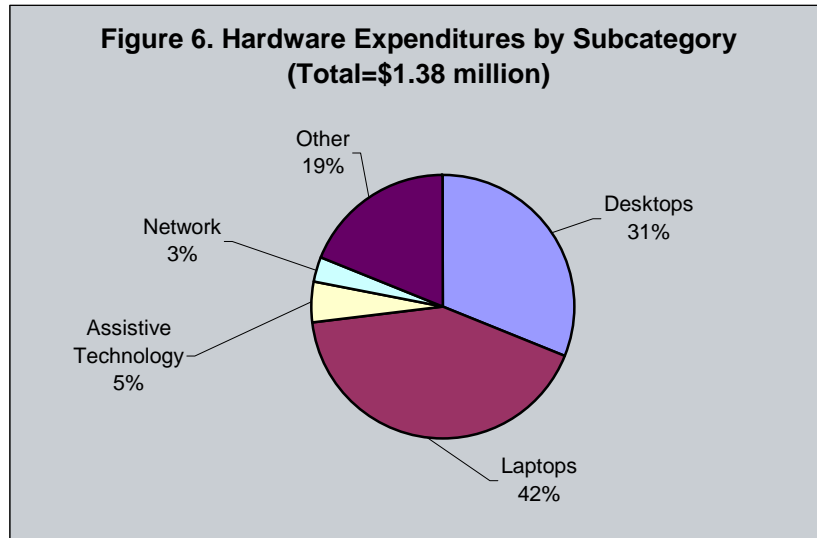
Hardware and software purchases accounted for about one third of the expenditures. The average hardware cost per grantee was \$60,000. Software purchases totaling \$350,000, were made by 16 of the grant recipients, with an average of \$22,000 each.

Table 2. Hardware and Software Expenditures				
	Number of Grant Projects	Quantity (computers)	Cost	% of Hardware or Software Expense
Desktops	15	390	\$428,000	31%
Laptops	21	428	\$580,000	42%
Network	9		\$37,400	3%
Assistive Technology	9		\$67,400	5%
Other Hardware	17		\$271,800	19%
<b>Total Hardware</b>		<b>818</b>	<b>\$1,384,600</b>	
Admin Software	10		\$21,000	6%
Curricular Software	16		\$201,500	57%
Assistive Tech Software	6		\$80,000	23%
Other Software	5		\$49,000	14%
<b>Total Software</b>			<b>\$351,500</b>	

In the hardware category, the data in Table 2 show that:

- 21 of the 23 grant projects spent money on computers, laptops and/or desktops, accounting for 73% of the hardware expenditures. This was a total of 818 computers: 390 desktops and 428 laptops.
- Network equipment accounted for only 3% of the hardware purchased.
- Assistive technology (AT) was 5% of the total hardware purchased; 9 grant projects included AT hardware in their expenditures.
- Other hardware, which made up 19%, included projectors, laser printers, probeware, videoconference equipment, interactive boards, large screen monitors, and backup drives.

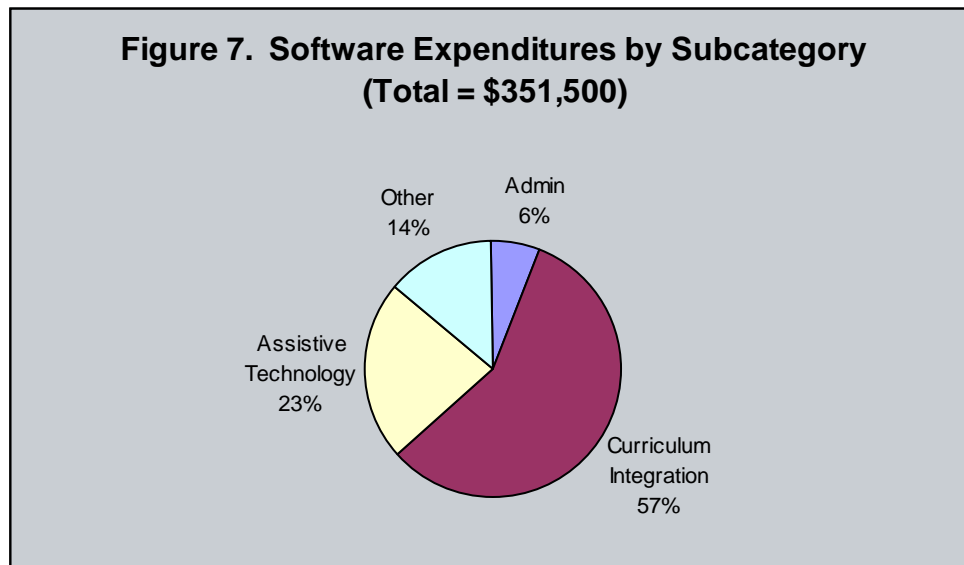
Figure 6 illustrates the distribution of these hardware expenditures.



In the software category, the data show that

- The majority of software dollars, about \$200,000, were spent on programs for curriculum integration, 57%. Only about a fourth of this curriculum software was by subscription, the bulk of it was for one-time purchases.
- 23% of the software purchased was for assistive technology. Examples include: Wordmaker, Intellitools, electronic books, Intellikeys, Boardmaker, and Kurzweil.
- Other software purchases, which made up 17%, included Photoshop, Macromedia Studio, Dreamweaver, Inspiration, PAR Assessment, Visions Portfolio, Graphic Analysis, Data Studio, and Real Lives Simulation software.
- The smallest amount of this subcategory, 6%, was for administrative software such as databases.

The distribution of software expenditures is shown in Figure 7.



### **Administrative Expenditures**

After professional development, hardware and software, the remaining expenditures were for project coordination, evaluation, support and maintenance, supplies and travel. Of the total grant funds, these were distributed as follows:

- 6% of total expenditures (\$300,000) were used for program evaluation. Average project expenses per project were \$13,000 over the two years.
- Project coordination and administrative expenditures (\$470,000) accounted for 9% of the total grant funds. This is an average of \$10,000 per project per year.
- 14% of total expenditures (\$711,000) were other costs such as maintenance and support, supplies and travel. Supplies accounted for about half of this last category of other administrative expenses.

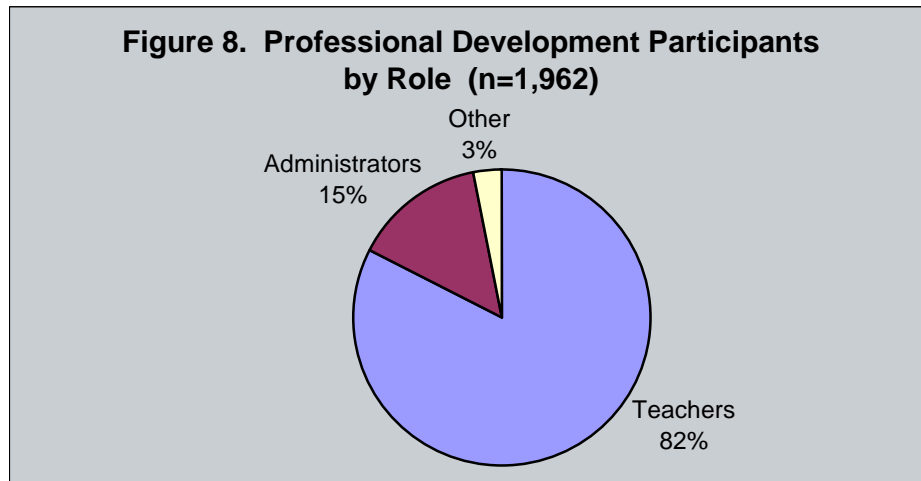
### **Program Activities**

#### **Professional Development**

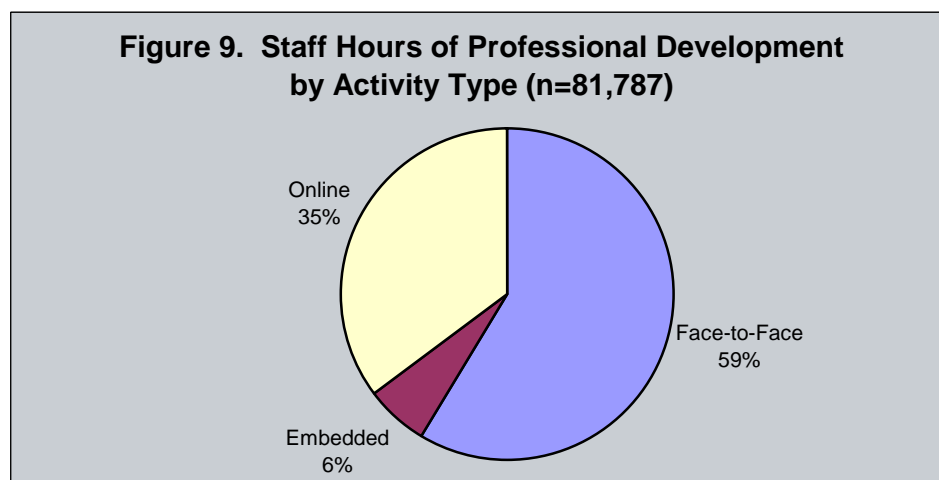
During the two years of this grant program over 500 professional development events were conducted for educators in more than 75 school districts. The average number of events per grant project was about 20.

Through this grant program 1,962 educators received professional development. Of these educators, 800 participated in greater than 25 hours of technology professional development activities. As shown in Figure 9, teachers made up the largest group of participants, 82% (1,607). In addition, 283 administrators, 15% of the total, also

participated in technology professional development. The “other” category, which included educational professionals such as guidance counselors, for example, made up the remaining 3% of participants.



The total staff hours reported for all professional development during this grant was 81,787. Staff hours for each event were determined by multiplying the number of participants by the number of hours for the event. Grant recipients also reported the types of professional development received. These were defined as face-to-face (workshops, seminars and study groups), embedded (coaching or mentoring), and online courses or training sessions. Figure 11 shows the distribution of staff hours by activity type. Face-to-face still makes up the majority of professional development (59%). Online professional development hours accounted for 35% (28,757 hours), and embedded activities that were reported made up 6% of the total. It is important to note that the embedded activities may have actually been higher, since tracking these hours is difficult.



### Hardware and Software Used

Grant recipients reported the hardware and software used in their grant activities. Table 3 is a list of the items in the survey, which enumerates the number of grantees using them. These are given in descending order. Spreadsheet and multimedia presentation software were the most commonly used software, in about 75% of the projects. MassONE and other online resources were also part of a majority of the grantees programs, at 65%.

Table 3. Technology Used		(n=23)
Item		Number of Projects
Spreadsheet		17
Multimedia presentation		17
MassONE (formerly VES)		15
Online resources/websites, streaming video		15
Curriculum Software		13
Digital camera		12
Database		11
TestWiz		9
Online teaching system		8
Web design software		8
Scanner		8
Electronic Whiteboard		6
Graphing calculators		5
Digital camcorder		5
Probes/data loggers		4
Videoconferencing		4
Other		2
NCS Mentor		1
Handheld computers		1

## Conclusion

In summary, this grant program not only met or exceeded all of the federal requirements but also addressed federal goals for technology in education. The National Education Technology Plan<sup>2</sup> specifies seven major action steps and recommendations. The grants funded have addressed these recommendations, as follows. All 23 projects included teacher training in the effective use of technology to enhance learning. Projects involved planning and designing online courses and enabled educators to participate in e-learning, including courses specifically designed for superintendents. Many grants addressed the national goal of moving toward digital content by encouraging teachers to harvest quality web resources for their teaching and to develop multimedia for curriculum instruction. Student assessment and data management were the focus of 13% of these grants. These grants afforded school districts the opportunity to begin the integration of data systems, as recommended in the national plan, so that administrators and educators will be able to access information needed to increase efficiency and improve student learning.

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<sup>2</sup> Toward a New Golden Age in American Education, National Education Technology Plan 2004, U.S. Department of Education

## Appendix: Title II-D FY 2004 High Need School Districts

The term high-need school district means a school district that meets two conditions:

- (A) The district has at least 12% of the student population or at least 1000 children come from families with incomes below the poverty line (based on the U.S. Census).
- (B) The district operates one or more schools identified under section 1116 or the district has a substantial need for assistance in acquiring and using technology, based on the guidelines stated in the "Local Technology Benchmark Standards for 2003".

### Public Schools

Amherst	Easthampton	Haverhill	Marlborough	Provincetown	Tisbury
Avon	Everett	Holyoke	Methuen	Quincy	Ware
Barnstable	Fall River	Hull	Milford	Revere	Wareham
Boston	Falmouth	Ipswich	New Bedford	Salem	Watertown
Bourne	Fitchburg	Lenox	North Adams	Savoy	Webster
Brockton	Framingham	Lawrence	Northampton	Somerville	Wellfleet
Cambridge	Gardner	Leominster	Oak Bluffs	Southbridge	Westfield
Chelsea	Gloucester	Lowell	Oxford	Springfield	West
Chicopee	Greenfield	Lynn	Pittsfield	Sturbridge	Springfield
Clarksburg	Harwich	Malden	Plymouth	Taunton	Winchendon
					Worcester

### Regional School Districts

Adams-Cheshire	Hawlemont	New Salem-Wendell
Athol-Royalston	Martha's Vineyard	Northampton-Smith
Dennis-Yarmouth	Mohawk Trail	Quaboag Regional
Gill-Montague	Narragansett	

### Agricultural/Vocational Technical School Districts

Bristol County Agr	Greater Lowell Voc Tec	So Middlesex Voc Tech Reg
Essex Agr Tech	Greater New Bedford Northern	Southeastern Reg Voc Tech
Franklin County	Berkshire Voc	Southern Worcester Cty VT
Greater Fall River	North Shore Reg Voc	Whittier Voc
Greater Lawrence RVT	Pathfinder Voc Tech	

### Charter Schools

Abby Kelley Foster Regional CS	Community Day CS	North Central Charter ESS
Academy of Pacific Rim CS	Conservatory Lab CS	River Valley CS
Atlantis CS	Edward Brooke CS	Robert M. Hughes Academy CS
Barnstable Grade 5 HMCS	Health Careers Academy HMCS	Roxbury Prep CS
Benjamin Banneker CS	Lawrence Family Development CS	S.Boston Harbor Academy CS
Boston Evening Academy HMCS	Lowell Middlesex Academy CS	Sabis International CS
Boston Renaissance CS	Media & Tech CS	Seven Hills CS
Champion HMCS	Neighborhood House CS	Somerville CS
City On A Hill CS	New Bedford Global Learn. HMCS	Uphams Corner CS
Codman Academy CS	New Leadership HMCS	