Title II D Enhancing Education Through Technology Funds: 2003-2004

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PROGRAM OVERVIEW

The Title II D, Enhancing Education Through Technology Fund of 2001 (Title II D), as described by the No Child Left Behind Act (NCLB Public Law 107-110), provides funding for technology and technological training to help teachers integrate technology into classrooms to increase students' achievement in technological and core content areas. The content of Title II D funded professional development is aligned with the TEKS, other district-wide initiatives such as Principles of Learning, and current research on effective instruction using technology.

AISD received $563,874 in Title II D formula funds to provide professional development and services that increase technology integration in AISD classrooms. AISD used those funds to provide: professional development in the form of workshops, seminars, mentoring, web-based training, and distance learning ($275,920); ongoing technical and instructional support to teachers and district personnel ($199,458); support services such as grant development and evaluation ($32,188); and for hardware ($3,869).

Figure 1. Title II D Funds Expenditures, 2003-04
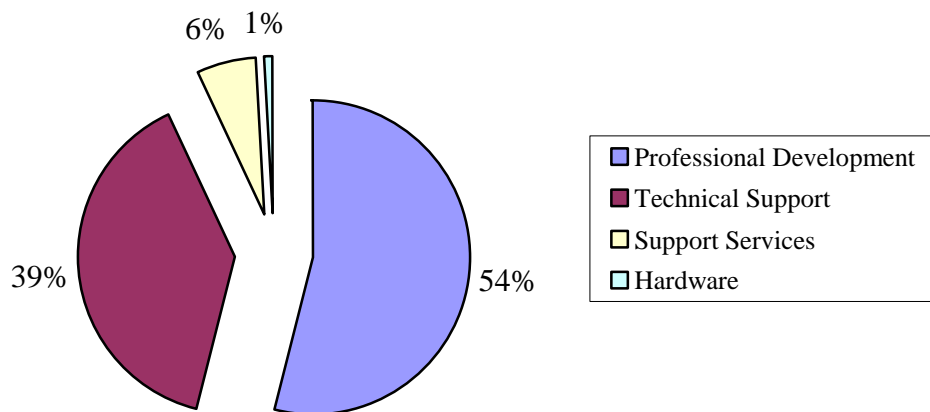
Source: Financial Records of the Title II D Grant, July, 2004

Major Activities Funded with Title II D Monies

Title II D monies were used to fund several activities. First, these funds were used to provide week-long summer trainings that helped teachers to learn about technology resources

available in the district, to develop Units of Practice that integrate technology into existing content area lessons, and to learn technology skills (e.g., MAESTRO or SSRT). Second, teachers attended classes to help them become certified in technology applications. Finally, Instructional Technology staff provided ongoing training and support to campuses and district staff throughout the year.

A total of 209 teachers attended MAESTRO training, 89 attended SSRT sessions, and 38 completed their coursework to qualify for certification in Technology Applications. Over the course of the entire 2003-04 school year, staff funded by Title II D trained or provided support to 5,000 teachers, 100 district staff, 80 campus staff, and 1,200 students. (For information on the effects of SSRT training on the teachers' and students' technology skills and technology integration see Samii-Shore, 2004.)

Effects of the Title II D Funded Activities on Teachers' Technology Skills

An online survey was administered to teachers attending summer trainings in technology use and integration called MAESTRO. Of the 209 teachers who attended the summer trainings, 122 responded to the online surveys that were administered before and after the training. In the spring of 2004, teachers who attended MAESTRO were re-administered the survey to see if they had gained additional skills during the year. Each time, teachers were asked to report on a four-point scale how proficient they believed they were on a variety of technology skills. The survey assessed teachers' general skills (for example copying and saving files), as well as their word processing, spreadsheet, presentation software, Internet, Inspiration, and iMovie skills.

Table 1. Number of Teachers Surveyed by Campus Level: MAESTRO Program 2003-04

	Pre-Training Survey	Post-Training Survey	Post-Program Survey
Elementary School	38	50	52
Middle School	10	21	17
High School	16	15	18
Level not identified	11	3	1
Total Teachers	75	89	88

Source: MAESTRO online surveys, Summer, 2003 and April, 2004.

To examine the effects of the MAESTRO training provided in 2003, teachers' answers on the pre-training surveys were compared to their answers on the post-training surveys.

Participants reported that they were more skilled in all areas at the end of MAESTRO training than they were before.[1]

The same survey also was administered to 328 core content area teachers (e.g., mathematics, science, social studies, language arts) in AISD in September of 2003 and again in the spring of 2004. Once the surveys were received, respondents were divided into two categories, those who indicated on the survey that they had never attended MAESTRO and those who had attended in years prior to 2003.

Table 2. Number of Comparison Teachers Returning Surveys by Campus Level and MAESTRO Attendance

	Pre-Survey		Post-Survey	
	Previously Attended MAESTRO	Never Attended MAESTRO	Previously Attended MAESTRO	Never Attended MAESTRO
Elementary School	8	9	3	11
Middle School	24	43	31	46
High School	6	40	8	54
Total Teachers*	43	94	47	117

* Source: Teacher Technology Needs Assessment online surveys, September, 2003 and April, 2004
*Note: Some teachers did not indicate a campus level, therefore the total number of teachers listed is not the sum of the elementary and secondary teachers.

To examine whether teachers who attend MAESTRO might be already be different from teachers who do not attend MASETRO, teachers in the MAESTRO 2003 group were compared, pre-training, to the group of comparison teachers who had never attended MAESTRO. Pre-training, MAESTRO 2003 teachers were similar to non-attendees on most skills with the exceptions of Inspiration and iMovie skills. MAESTRO 2003 teachers reported higher levels of skill in both iMovie and Inspiration, although neither group reported high levels of proficiency in these two skill areas. The MAESTRO 2003 group also reported more frequent technology integration before they attended training than did those who never attended training.[1]

Post-training, both groups of MAESTRO attendees (the 2003 and 1998-2002 groups) were significantly more likely to report higher levels of proficiency on almost all technology skills than did teachers who had not attended MAESTRO. Comparisons between groups who reported attending MAESTRO between 1998 and 2002, and those who attended in 2003, revealed that the MAESTRO 2003 attendees were more proficient in using Inspiration and

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[1] Chi-square analysis revealed significant differences at the p<.05 level.

iMovie in the fall and presentation software and iMovie skills in the spring. These two groups were not different however, in their level of proficiency with the other technology skills and not different in their frequency of technology integration in the classroom.[2]

Effects of the Title II D Funded Activities on Students' Technology Skills

In the fall of 2003, a survey was administered to a random sample of students whose teachers had participated in MAESTRO training in the summer of 2003. Students were asked to report how proficient they believed they were on a variety of technology skills. The survey assessed students' general skills (e.g., copying and saving files), as well as their word processing, spreadsheet, presentation software, Internet, Inspiration, and iMovie skills. MAESTRO students were surveyed again in the spring of 2004 to assess changes in those skills.   Additionally, a random sample of students whose teachers did not participate in MAESTRO also were surveyed in the spring. These data were compared to examine differences in the technology skills between students whose teachers did or did not participate.

Statistical analyses of the data revealed that students' self-reported proficiency differed by grade level for both groups and on both the pre and post survey. On almost all skills, elementary students reported significantly lower levels of proficiency than did middle and high school students. High school students reported higher levels of proficiency than did middle school students on all skills. Differences between groups generally were marked, except in students' reported Inspiration and iMovie skills, where all three groups reported very low levels of proficiency.[2]

Table 3. Number and School Level of Students Responding to Technology Skills Surveys

	Pre Survey (MAESTRO) Number of Students Responding	Post Survey (MAESTRO) Number of Students Responding	Post Survey (Comparison) Number of Students Responding
Elementary School	16	38	129
Middle School	73	149	81
High School	40	45	58

Source: MAESTRO Fall Student Technology Survey, Fall, 2003; Student Technology Survey, April, 2004.

Students whose teachers had participated in MAESTRO training reported that they were more proficient in all seven skill areas and on 27 of the 35 skills examined at the end of the year, compared to the beginning of the year. When results of the post-survey were examined, high

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[2] Chi-square analysis revealed significant differences at the p<.05 level.

school students in both the MAESTRO and comparison groups were similar in their reported proficiency on all areas. Middle school students in the MAESTRO group reported higher levels of proficiency on 11 of 35 skills and in three skill areas (Internet, presentation software, and general skills) than did the comparison group. Elementary students in the comparison group reported higher levels of proficiency in six of the seven skill areas and on 18 of the 35 skills examined.[3] Because surveys were collected from fewer MAESTRO elementary classrooms (four in total for both pre-and post-surveys) than from comparison classrooms (eight classrooms), it is not possible to draw a general conclusion from these elementary level data.

Effects of the MAESTRO Program on Technology Integration

In the teacher technology surveys described above, teachers were asked about how they integrated technology in their classrooms and with what frequency. Teachers who attended MAESTRO sessions in both 2003 and those who attended between 1998 and 2002 reported similar levels of technology integration and Unit of Practice implementation. Teachers who had attended MAESTRO were more likely to report that they integrated technology in their classrooms often or very often, compared to the group who had not attended MAESTRO. The MAESTRO teachers also were more likely to report that they had implemented a Unit of Practice[3] at some point in the year. Reports from teachers who attended MAESTRO sessions in 2003 indicate that there was no change over the course of the school year in how often they integrated technology into their classroom practice. Most teachers in all groups reported that they sometimes integrated technology into their classroom practice.

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[3] Chi-square analysis revealed significant differences at the $p<.05$ level.

Figure 1. Teachers' Self-Reported Frequency of Technology Integration
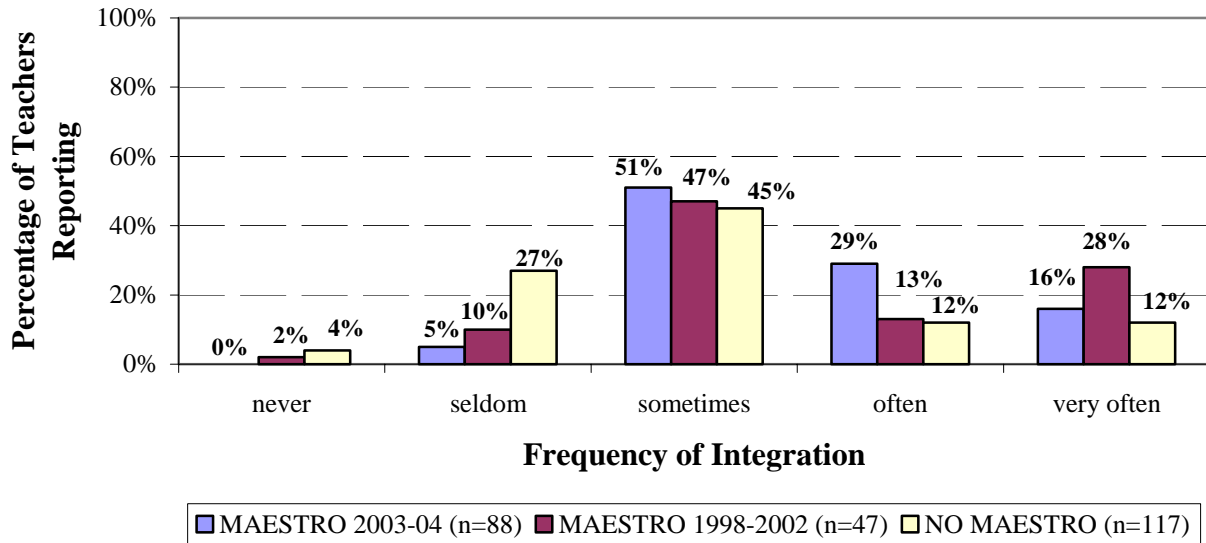
Source: Teachers' Technology Surveys, Spring, 2004.

Although nearly half of teachers who attended MAESTRO reported that they had implemented a technology Unit of Practice, interview data indicated that teachers did not often implement an entire unit. Instead they tended to have implemented parts of their Unit of Practice or technology skills that they had learned in the context of developing a Unit of Practice. Many teachers reported concerns about how the units could be worked into the district's curriculum frameworks and that implementing an entire unit was too time consuming.

SUMMARY AND RECOMMENDATIONS

Title II D provides funding for educational technology and professional development to assist teachers in integrating technology into their classrooms to increase students' achievement in technological and core content areas. This year, AISD used Title II D funds to provide teachers with professional development and support that helped teachers to integrate technology and technological resources into their existing classroom practice and to learn technology skills. Teachers also attended classes to help them become certified in technology applications.

During the 2003-04 school year teachers and students gained valuable technology skills. Taken as a whole, findings from the teacher surveys suggest that MAESTRO summer trainings

provide teachers with valuable technology skills and that those skills do not deteriorate over the course of several years. They also suggest that teachers who attend MAESTRO are already integrating technology in their classrooms more often than do those who do not attend, and that MAESTRO teachers continue to use their technology skills and to integrate technology into their existing classroom practice.

Teachers who attended MAESTRO trainings did implement the technology they learned, but did not always implement integrated technology units in the form that the staff had envisioned. Teachers tended to integrate a single technology package, such as Inspiration for several days, rather than integrating multiple technologies over longer periods of time. This suggests that the vision for integration may need to be more flexible to meet teachers' needs.

Interviews and survey data from teachers and staff indicate that teachers do not take advantage of the ongoing support provided by the Instructional Technology staff in any systematic way. Staff provide a broad range of services to all teachers on an on-call or schedule basis depending upon the needs of the campus and teacher. Teachers who attend trainings, however, are not required to implement the technology units they have developed nor to attend follow-up training to improve their skills. Research on the effects of training on implementation suggests that only about 15% of participants will be able to implement a new program based on a one-time training session, but that up to 80% will be able to implement with regular ongoing support (Joyce & Showers, 1995). This suggests that to increase both the quality and quantity of technology integration in the classroom, staff must provide ongoing support and follow-up that address challenges to successful implementation, is non-negotiable, and provides clear standards and expectations for quality implementation.

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