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Survey Report #3: Final Results from the eMINTS Teacher Survey

This report presents results from the eMINTS teacher surveys administered between 1999 and 2001. During this period the eMINTS program refined its professional development instruction and improved its service delivery procedures. Over the survey period the results show general improvement in teacher computer usage in areas related to instruction. By the spring of 2001 eMINTS teachers report that they are doing more with computers, that they feel more skilled in using computers, and that they use computers more frequently in their work. Teachers also feel that they are more effective teachers, as indicated by the overall increase in the average score on the MSIP Instructional Efficacy scale. The pattern of responses suggest that this improvements in teacher opinion is related to programmatic improvements in its second year.

The eMINTS Program and the Teacher Surveys

The period of these surveys cover the first two years of the eMINTS program and span the entire period of participation for the first cohort of teachers, the FY00 group. During these two years the instructional focus of the program was clarified and refined and many program operations were streamlined. The FY01 school year (2000-2001) was the first year the professional development component of the program was fully staffed. During this year the content of the professional development activities was revised to motivate the application of inquiry-based teaching practices. In addition, many of the technical issues surrounding classroom installation and the deployment of student computers were addressed. For example, installation of student computers in the FY00 classrooms took four months to complete (from December 1999 to March 2000), while installation of student computers in the FY01 classrooms was completed in two months (from November 2000 to January 2001).

As the eMINTS program developed, as the program's emphasis on using technology to facilitate inquiry-based teaching practices became clearer, and as the technical requirements for creating and maintaining an eMINTS classroom were met, teachers' opinions about the program as well as their technical abilities improved. This is seen most clearly among the teachers in the FY00 cohort. These teachers entered the program with a generally positive sense of their ability to teach. However, through the first year of the program their opinions about their effectiveness as teachers fell, as did their commitment to teaching. After their second year of the program, the year the program refined its emphasis on inquiry-based teaching, teacher opinions recovered. The impact of the program's development on teacher opinions is supported by the experiences of the

This report is one product of the eMINTS evaluation project. Other reports and their overall evaluation plan are available at <http://emints.more.net/evaluation>.

The eMINTS Evaluation focuses on student impacts, teacher impacts, changes in learning environments, and outcomes of project services.

FY01 cohort, teachers who only experienced the program's second year. Their opinions about teaching activities and their teaching effectiveness improved over the course of their year in the program.

The cumulative results of the eMINTS teacher surveys shows a general improvement in teacher perception of the effectiveness of inquiry-based teaching activities, in their computer usage, their perception of their computing skills, and in their opinions about teaching.

However, the survey results presented below are based on self-reports. They reflect respondents' perceptions and opinions at a particular point in time. The eMINTS surveys were designed to provide a general assessment of summary opinions of the set of participating teachers through out their tenure in the program. While there are objective methods to assess computing skill and classroom operation, these surveys did not apply them. Consequently, these results reflect teacher opinions rather than some sort of objective standard.

The surveys asked teachers to respond to a set of common questions taken from the Missouri School Improvement Program (MSIP) Advanced Questionnaire, the South Central Regional Technology in Education Consortium (SCR*TEC) Profiler Basic Skill Inventory, and items adapted from the *National Educational Technology Standards for Teachers* summary document. All of these questions have been independently tested and verified. They provide a reliable and valid foundation for understanding teacher opinions and perceptions during the first two years of the eMINTS program.

The Administration and Content of the Teacher Surveys

Data were gathered from both the first cohort of teachers (FY00) at three points, at their kickoff in 1999, in the autumn of 2000 and in the spring of 2001. The last administration of this survey coincided with the end of the FY00 teachers' participation in the eMINTS program, so the results for FY00 teachers address their opinions and experiences throughout their involvement in the program.

Results from the second cohort of eMINTS teachers (FY01) were collected twice, at their kickoff in 2000 and in the spring 2001, or after the end of their first year in the program. The second survey was conducted at the halfway point of their participation in the program.

The first FY00 teacher survey was collected on a paper and pencil questionnaire, while all other surveys were administered on-line through the South Central Regional Technology in Education Consortium (SCR*TEC) Profiler, which was adjusted to include a similar set of items used in the paper and pencil questionnaire.

The teacher surveys were organized into 4 main sections. Previous reports in this series have reported results in questionnaire order. Here, the report is organized according to

their relevance to the program's impact on teachers. Results from the surveys' sections are presented in the following order:

- *Section 1: Teacher Opinions of the Effectiveness of Teaching Activities* These items address teacher opinions about the effectiveness of various teaching activities.
- *Section 2: Instructional Efficacy, School-Level Support for Educational Technology, Commitment to Teaching and School Climate Scales* These scales assess teacher opinions about their sense of instructional efficacy, their perceived level of support for educational technology in their school, their commitment to teaching and their school climate using opinion items from the MSIP teacher advance questionnaire.
- *Section 3: Frequency of Teacher Computer Use in Education* These items address the frequency of teacher computer use in a variety of common educational activities.
- *Section 4: Teacher Computer Use and Expertise* These items address teachers' ratings of their expertise in various computing tasks and teaching strategies.

This report will summarize results of each cohort of teachers separately. Each section will compare teacher responses across all administrations of the survey.

Responses from FY00 Teachers

Survey responses from the FY00 teachers cover the entire period of their eMINTS program participation. The survey responses from FY00 teachers were collected at the FY00 kickoff in the autumn of 1999, one-year into their program participation in the autumn of 2000, and again at the end of their participation in the spring of 2001. The totality of these responses shows an improvement in teacher computer usage, teachers' sense of their expertise, their frequency of computer use, and their opinions of their effectiveness as teachers.

Response Rate

Ninety-nine teachers attended the FY00 kickoff meeting. Ninety of these teachers, or 91 percent, completed the first survey. The response rate for the subsequent surveys was lower. In the autumn of 2000, 67 teachers completed the survey, a response rate of 68 percent. In the spring of 2001, 77 teachers completed the survey, for a response rate of 78 percent. The differences in response rate increase the possibility that these responses may not represent the opinions of all FY00 teachers. Never the less the responses from participating teachers suggest that their experiences in the eMINTS program has led to significant changes in teacher computing skills and teaching practices.

Section 1: Effectiveness of Teaching Activities

Table A.1 presents data on teacher opinions about the effectiveness of a variety of traditional and inquiry-based teaching activities. Table A.1 shows both the percentage of teachers who report using an activity and the effectiveness ratings of teachers who report using an activity.

The first part of Table A.1 presents teacher responses for five “traditional” teaching activities. There are no significant changes in the proportion of teachers who say they lecture, use textbooks, and use printed supplementary activities. However, there are slight decreases in the proportion of teachers who report they demonstrate concepts using the board or an overhead projector, and the proportion of teachers who have students complete worksheets. For example, at the kickoff all teachers reported using the board or an overhead projector compared to 92.2 percent of teachers in the spring of 2001.

In terms of effectiveness, there were no significant differences in teacher assessment of these activities.

The second part of Table A.1 presents responses about a set of inquiry-based activities. There are statistically significant increases in the percentage of teachers who report having students use materials from the Internet and having students use online reference materials maintained by their school library. The percentage of teachers who have their students use the Internet increased from 62.2 percent at the kickoff to 98.7 percent in the spring of 2001. The percentage of teacher who have their students use online reference materials increased from 47.8 percent at the kickoff to 70.1 percent in the spring.

Teachers’ opinions of the effectiveness of five inquiry based activities changed significantly over the survey period. The pattern of change revealed a decrease in teacher ratings between the kickoff and the autumn 2000 followed by an increase in the spring of 2001. However, in all but one case, teacher ratings in the spring administration were lower than they were at the kickoff.

The following activities showed significant differences:

- *Having student confer with others about their work.* This is the one activity that showed a net increase between the kickoff and the spring surveys. At the kickoff 46.0 percent of the teachers rated this activity as “very effective”, compared to 25.8 percent in the autumn and 52.0 percent in the spring.
- *Working with small groups of students.* At the kickoff 85.4 percent of teachers rated this activity as “very effective”. In the autumn of 2000 64.6 percent rated the activity as “very effective”, compared to 75.3 percent in the spring of 2001.
- *Have students respond to open-ended questions.* The percentage of teachers rating this activity as “very effective” changed from 60.7 percent at the kickoff to 30.4 percent in the autumn to 55.8 percent in the spring.
- *Demonstrate a concept using manipulatives, models, or other tools or objects.* The percentage of teachers rating this activity as “very effective” changed from 94.4 percent at the kickoff to 63.1 percent in the autumn to 78.7 percent in the spring.

- *Have students use online reference materials maintained by your library.* The percentage of teachers rating this activity as “very effective” changed from 72.1 percent at the kickoff to 22.2 percent in the autumn to 48.1 percent in the spring.

Section 2: Instructional Efficacy, School-Level Support for Educational Technology, Commitment to Teaching and School Climate

Tables A.2 and A.3 present teacher responses to a series of opinion scales taken from the Missouri School Improvement Program (MSIP) Teacher Advance Questionnaire. Table A.2 presents summary statistics for four additive scales: Instructional Efficacy, School Level Support for Educational Technology, Commitment to Teaching, and School Climate. Table A.3 presents the items in each scale.

Table A.2 shows significant differences in three of the four additive scales asked in the survey: the Instructional Efficacy scale, the School-Level Support for Educational Technology scale and the Commitment to Teaching scale. There were no significant differences in the School Climate scale.

Two of these scales, the Instructional Efficacy and the School-Level Support for Educational Technology scale show net increases over the survey period, indicating that teachers’ opinion of their instructional efficacy increased over their participation in the eMINTS program. The same can be said for their perception of the support for educational technology in their school building.

On the Commitment to Teaching scale teachers show a consistently high level of commitment throughout their program participation. The scale has a maximum value of 5 points and the average scale score is between 4.28 and 4.53 in each survey. However, between the kickoff and the autumn survey, the average score of the scale fell from 4.53 to 4.28. In the spring, the average score remained essentially the same, 4.30.

The individual items are reported in Table A.3. These items show the same general pattern as seen in Table A.1, i.e., items scores decrease between the kickoff and autumn 2000 and recover by the spring 2001.

Section 3: Frequency of Computer Use

Table A.4 presents teachers’ reports of how frequently they use computer technology to prepare for class, perform administrative activities and teach. With few exceptions the percentage of teachers who say they perform a given activity using a computer 3 to 4 times a week or every day has increased over the period of the program. For example, at the kickoff no teachers said they used the Internet as part of their classroom instruction everyday, compared to 41.8 percent in the autumn of 2000 and 62.3 percent in the spring of 2001.

Teachers significantly increased their use of computers in eight of the fourteen activities in Table A.4. Some of the activities that did not show statistically significant increases were exchanging files with other teachers, making handouts, using online reference

materials, performing administrative activities on the computer and communicating with parents.

Section 4: Teacher Computer Operation and Expertise

Teacher Computer Operation

Results from the first section of the survey are presented in Tables A.5 and A.6. Most of the sixteen items in Table A.5 show a steady increase in the proportion of FY00 teachers reporting that they perform the specific operation. By the spring of 2001 over 90 percent of responding teachers reported they could perform 9 of the 16 listed activities. There is one exception to this pattern; the percentage of teachers who report they are able to “Setup computer system and connect peripheral devices” has stayed near fifty percent between the kickoff and spring administrations of the survey.

The item with the lowest percentage of teachers who say they can perform the activity is “Record an audio file or digitize a video clip.” By the spring administration of the survey 46.8 percent said they could perform this activity. At least 75 percent of responding teachers said they could perform all of the other skill items by the spring of 2001.

Teacher Computing Expertise

Table A.6 presents teachers’ ratings of their computing expertise from the autumn 2000 and spring 2001 survey administrations. As in Table A.5, there is a marked increase in teachers’ ratings of their expertise over the period. For the twenty items in Table A.6 teachers were asked to classify themselves as “Novice”, “Apprentice”, “Practitioner”, or “Expert”.

In the spring survey administration more than 77 percent of all teachers classified themselves as a “Practitioner” or an “Expert” on every item except the ability to judge virus warnings. Fifty-eight (58.4) percent of all teachers classified themselves as a “Practitioner” or an “Expert” in the “ability to judge the validity of virus warnings.”

Summary: FY00 Teachers at the End of the Program

The results of the three administrations of the eMINTS teacher surveys show a general pattern of increase and improvement. After the first year of the program, i.e., by the Autumn of 2000, survey results indicate an overall decline in teachers’ opinions of their effectiveness, but by the end of their program participation in the Spring of 2001 eMINTS teachers report that they are doing more with computers, that they feel more skilled in using computers, and that they use computers more frequently in their work. By the end of the program teachers also felt they were more effective teachers, as indicated by the overall increase in the average score on the MSIP Instructional Efficacy scale.

Responses From FY01 Teachers

The survey period for the FY01 teachers covers the first year of their program participation. The survey was administered twice, at their kickoff meeting in the summer of 2000 and again in the spring of 2001. As with the FY00 teachers, survey results show an overall increase in teacher computer use, teacher computing skill, frequency of computer use and a net improvement in teacher opinions of their instructional efficacy.

Response Rate

One hundred eight teachers participated in the FY01 year of the eMINTS program. Of these teachers 98, or 90.7 percent, completed the survey at their kickoff meeting in 2000. Ninety-nine (91.6 percent of all teachers) teachers completed the survey in the spring of 2001.

Section 1: Effectiveness of Teaching Activities

Table A.7 presents data on teacher opinions about the effectiveness of a variety of traditional and inquiry-based teaching activities for FY01 teachers. As with the FY00 teachers, the results in Table A.7 show no significant differences in the percent of teachers who report using traditional teaching activities and no significant differences in teachers' ratings of the overall effectiveness of these activities.

For the inquiry-based teaching activities, there are increases in the proportion of teachers who report using each activity. For six of the twelve inquiry-based activities in Table A.7 the increase was statistically significant.

For many of the non-significant items, a high proportion of teachers reported using the activity at the kickoff. For example, in the spring, all FY01 teachers report having students working in small groups, compared to 99.0 percent of teachers at the kickoff.

On the other hand, items that show a statistically significant difference reflect a substantial increase in the use of the activity. For example, in the spring 96.0 percent of teachers report having their students use materials from the Internet compared to 83.7 percent at the kickoff.

FY01 teachers' ratings of the effectiveness of all of the inquiry-based teaching activities increased between the kickoff and the spring. For seven of the twelve activities, this increase is statistically significant.

Section 2: Instructional Efficacy, School-Level Support for Educational Technology, Commitment to Teaching and School Climate

Tables A.8 and A.9 present the additive scales from the MSIP Teacher Advance Questionnaire. Table A.8 shows statistically significant increases in the Instructional Efficacy, School-Level Support for Educational Technology, and School Climate scales.

There was a slight decrease in the Commitment to Teaching scale but this difference is not significant.

Table A.9 presents the responses from the MISP items. With the exception of the two items in the Teacher Commitment scale, there is an increase in item scores between the FY01 kickoff and the spring 2001 administration.

Section 3: Frequency of Computer Use

Table A.10 shows increases in the frequency of computer use. For example, at the kickoff, 7.1 percent of FY01 teachers reported searching the Internet for educational materials every day, compared to 62.6 percent in the spring of 2001. Likewise, at the kickoff, 5.1 percent of teachers said they used the Internet in their instruction everyday compared to 50.5 percent in the spring.

In contrast to the FY00 teachers, FY01 teachers significantly increased the frequency of computer use in all areas except using computers for administrative purposes. Unfortunately, the question does not provide any details about why this frequency did not change.

Section 4: Teacher Computer Operation and Expertise

Teacher Computer Operation

There was a substantial increase in every computer usage item in Table A.11. After one year in the program over ninety percent of FY01 teachers report being able to install application software, perform basic folder and file operations, access web pages, manage bookmarks, and use e-mail.

Teacher Computing Expertise

Table A.12 also shows substantial increases in teachers' reports of their overall skill after their first year. With one exception, teachers' ability to judge virus warnings, over two-thirds of teachers classify themselves as "practitioners" or as "expert." Compared to the kickoff, the average percentage of teachers who classify themselves as "practitioners" or "experts" nearly doubled.

Summary: FY01 Teachers at the Midpoint of the Program

The results from the two teacher surveys administered to FY01 teachers show substantial improvements in all areas. Survey results show an overall increase in teacher computer use, teacher computing skill, frequency of computer use and a net improvement in teacher opinions of their instructional efficacy. These results generally follow those seen in the FY00 survey results.

Conclusion: Development of the eMINTS Program and Teacher Opinions

Results of the eMINTS teacher surveys show the positive impact of program participation on teachers' opinions of inquiry-based instructional practices, on their sense of instructional effectiveness, and on their sense of their computing skills. However, most of this positive impact is seen in the program's second year, FY01.

The one area where the impact of changes in the program can be seen is in teacher ratings of the effectiveness of inquiry-based teaching activities. Table A.1 shows that the ratings of inquiry-based teaching activities by FY00 teachers fell between their kickoff meeting and autumn 2000, followed by a subsequent improvement in ratings by the spring of 2001. In contrast, the ratings of FY01 teachers in Table A.7 show an increase by the end of their first year in the program.

As mentioned above, the eMINTS program's professional development component improved substantially in the program's second year. These programmatic changes apparently have had a positive impact on all teachers' opinions about the effectiveness of the general teaching techniques and activities at the core of the eMINTS instructional philosophy.

The impact of programmatic changes is also seen in Tables A.2 and A.8. In both cohorts the teachers' sense of their instructional efficacy, i.e., their general sense of their effectiveness as teachers, has improved. For FY00 teachers the scale score fell between the Kickoff and the autumn of 2000, and improved between the autumn 2000 and spring 2001 survey administrations, i.e., during the program's second year. FY01 teachers' opinions of their instructional efficacy also improved

All teachers report gaining computing skills, improving their computing expertise, and are using computers more frequently in their classes. It is interesting to note, based on the results from Tables A.4 and A.10, that eMINTS computers are used primarily for instructional activities. The overall frequency of eMINTS teachers using computers to record attendance or other administrative records has not increased over the survey period while the frequency of using nearly every other activity in Tables A.4 and A.10 has increased.

In sum, these results show the positive impact the eMINTS program has had on participating teachers. Much of this impact is seen in the programs' second year. After a difficult beginning, it appears that the eMINTS program has developed effective strategies for developing and supporting inquiry-based instructional practices.

Table A.1
 Teachers Rating of Teaching Effectiveness and Use by Survey Administration,
 FY00 Teachers
 (in Percent)

Use Activity?	P- Value	Number of Teachers	Not Effective	Moderately Effective	Very Effective	All Teachers	Number of Teachers	P- Value
<i>Traditional Teaching Activities</i>								
<u>Lecture to the class as a whole</u>								
Kickoff 1999	96.7	0.8348	90	8.0	77.0	14.9	100.0	87 0.0670
Autumn 2000	95.5		67	17.2	60.9	21.9	100.0	64
Spring 2001	94.8		77	13.7	57.5	28.8	100.0	73
<u>Have students use a textbook</u>								
Kickoff 1999	97.8	0.1318	90	9.1	75.0	15.9	100.0	88 0.5146
Autumn 2000	91.0		67	11.5	67.2	21.3	100.0	61
Spring 2001	96.1		77	14.9	62.2	23.0	100.0	74
<u>Demonstrate a concept using the board or an overhead projector</u>								
Kickoff 1999	100.0	0.0270	90	0.0	54.4	45.6	100.0	90 0.4960
Autumn 2000	92.5		67	1.6	56.5	41.9	100.0	62
Spring 2001	92.2		77	1.4	45.1	53.5	100.0	71
<u>Use supplementary printed materials other than textbooks</u>								
Kickoff 1999	100.0	0.3592	90	1.1	36.0	62.9	100.0	89 0.0524
Autumn 2000	100.0		67	1.5	58.2	40.3	100.0	67
Spring 2001	98.7		77	0.0	51.3	48.7	100.0	76
<u>Have students complete a worksheet or workbook emphasizing routine practice</u>								
Kickoff 1999	100.0	0.0418	90	7.8	76.7	15.6	100.0	90 0.1377
Autumn 2000	92.5		67	16.1	66.1	17.7	100.0	62
Spring 2001	94.8		77	19.2	58.9	21.9	100.0	73

(Continued.)

Table A.1 Continued.

	Use Activity?	P- Value	Number of Teachers	Not Effective	Moderately Effective	Very Effective	All Teachers	Number of Teachers	P- Value
<i>Inquiry-Based Teaching Activities</i>									
<u>Have students use materials from the Internet</u>									
Kickoff 1999	62.2	<.0001	90	0.0	24.1	75.9	100.0	54	0.0678
Autumn 2000	97.0		67	0.0	41.5	58.5	100.0	65	
Spring 2001	98.7		77	0.0	26.3	73.7	100.0	76	
<u>Have students analyze and interpret information</u>									
Kickoff 1999	98.9	0.4220	90	3.4	33.7	62.9	100.0	89	0.1213
Autumn 2000	98.5		67	1.5	51.5	47.0	100.0	66	
Spring 2001	96.1		77	0.0	41.9	58.1	100.0	74	
<u>Have students confer with other students about their work</u>									
Kickoff 1999	96.7	0.3029	90	4.6	49.4	46.0	100.0	87	0.0335
Autumn 2000	92.5		67	4.8	69.4	25.8	100.0	62	
Spring 2001	97.4		77	4.0	44.0	52.0	100.0	75	
<u>Have students evaluate the work of other students</u>									
Kickoff 1999	90.0	0.1480	90	7.4	64.2	28.4	100.0	81	0.0592
Autumn 2000	94.0		67	12.7	73.0	14.3	100.0	63	
Spring 2001	97.4		77	6.7	57.3	36.0	100.0	75	
<u>Have students evaluate and improve their own work</u>									
Kickoff 1999	94.4	0.3118	90	4.7	47.1	48.2	100.0	85	0.4066
Autumn 2000	97.0		67	9.2	53.8	36.9	100.0	65	
Spring 2001	98.7		77	3.9	46.1	50.0	100.0	76	
<u>Work with small groups of students</u>									
Kickoff 1999	98.9	0.2786	90	0.0	14.6	85.4	100.0	89	0.0298
Autumn 2000	97.0		67	1.5	33.8	64.6	100.0	65	
Spring 2001	100.0		77	0.0	24.7	75.3	100.0	77	
<u>Have students respond orally to open-ended questions</u>									
Kickoff 1999	98.9	0.5900	90	0.0	39.3	60.7	100.0	89	0.0265
Autumn 2000	98.5		67	0.0	60.6	39.4	100.0	66	
Spring 2001	100.0		77	0.0	44.2	55.8	100.0	77	
<u>Have students work on problems for which there are several answers</u>									
Kickoff 1999	98.9	0.4184	90	3.4	30.7	65.9	100.0	88	0.3105
Autumn 2000	95.5		67	0.0	43.8	56.3	100.0	64	
Spring 2001	97.4		77	2.7	32.0	65.3	100.0	75	

(Continued.)

Table A.1 Continued.

	Use Activity?	P- Value	Number of Teachers	Not Effective	Moderately Effective	Very Effective	All Teachers	Number of Teachers	P- Value
<u>Have students work on problems for which there are several methods of solution</u>									
Kickoff 1999	98.9	0.2913	90	2.3	29.9	67.8	100.0	87	0.4121
Autumn 2000	95.5		67	1.6	45.3	53.1	100.0	64	
Spring 2001	98.7		77	2.6	38.2	59.2	100.0	76	
<u>Have students put events or things in order and explain why they were organized</u>									
Kickoff 1999	95.6	0.6045	90	1.2	32.6	66.3	100.0	86	0.0691
Autumn 2000	94.0		67	0.0	54.0	46.0	100.0	63	
Spring 2001	97.4		77	0.0	37.3	62.7	100.0	75	
<u>Demonstrate a concept using manipulatives, models other tools or objects</u>									
Kickoff 1999	98.9	0.6834	90	1.1	4.5	94.4	100.0	89	<.0001
Autumn 2000	97.0		67	1.5	35.4	63.1	100.0	65	
Spring 2001	97.4		77	1.3	20.0	78.7	100.0	75	
<u>Have students use online reference materials maintained by your library</u>									
Kickoff 1999	47.8	0.0057	90	0.0	27.9	72.1	100.0	43	0.0002
Autumn 2000	67.2		67	2.2	75.6	22.2	100.0	45	
Spring 2001	70.1		77	1.9	50.0	48.1	100.0	54	
<u>Have groups of students develop their own class projects</u>									
Kickoff 1999	76.7	0.0482	90	3.0	38.8	58.2	100.0	67	0.8615
Autumn 2000	83.6		67	5.4	44.6	50.0	100.0	56	
Spring 2001	90.9		77	2.9	42.9	54.3	100.0	70	

Table A.2
MSIP Opinion Scales by Program Year
FY00 Teachers

	Mean	Standard Deviation	Minimum	Maximum	Number of Teachers	P-Value	Number of Items	Alpha
<i>Instructional Efficacy</i>							5	0.6850
Kickoff 1999	4.26	0.42	3.00	5.00	88	0.0002		
Autumn 2000	4.21	0.54	2.40	5.00	67			
Spring 2001	4.50	0.40	3.60	5.00	77			
<i>School Level Support for Educational Technology</i>							5	0.7162
Kickoff 1999	2.76	0.71	1.00	4.40	87	<.0001		
Autumn 2000	3.42	0.79	1.00	5.00	67			
Spring 2001	3.72	0.64	2.20	5.00	77			
<i>Commitment to Teaching</i>							2	0.7162
Kickoff 1999	4.53	0.56	2.50	5.00	89	0.0253		
Autumn 2000	4.28	0.72	2.00	5.00	67			
Spring 2001	4.30	0.68	2.00	5.00	77			
<i>School Climate</i>							6	0.6837
Kickoff 1999	3.95	0.50	2.67	5.00	89	0.3708		
Autumn 2000	3.86	0.55	2.50	4.83	67			
Spring 2001	3.98	0.60	2.33	4.83	77			

Table A.3
MSIP Opinion Items by Program Year
FY00 Teachers
(in Percent)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	All Teachers	Number of Teachers	P-Value
<i>Instructional Efficacy</i>								
<u>Students are frequently provided information about their performance.</u>								
Kickoff 1999	0.0	0.0	4.5	51.7	43.8	100.0	89	0.0346
Autumn 2000	1.5	0.0	1.5	50.7	46.3	100.0	67	
Spring 2001	0.0	0.0	0.0	35.1	64.9	100.0	77	
<u>Students are held accountable for doing quality work.</u>								
Kickoff 1999	0.0	0.0	0.0	49.4	50.6	100.0	89	0.0003
Autumn 2000	3.0	0.0	0.0	32.8	64.2	100.0	67	
Spring 2001	0.0	0.0	0.0	19.5	80.5	100.0	77	
<u>Students give evidence of being able to apply what they have learned in previous grades.</u>								
Kickoff 1999	0.0	1.1	10.1	65.2	23.6	100.0	89	0.2494
Autumn 2000	3.0	0.0	13.4	64.2	19.4	100.0	67	
Spring 2001	1.3	0.0	6.5	57.1	35.1	100.0	77	
<u>Students are taught critical-thinking skills in this school.</u>								
Kickoff 1999	0.0	1.1	19.1	55.1	24.7	100.0	89	0.0022
Autumn 2000	1.5	3.0	11.9	61.2	22.4	100.0	67	
Spring 2001	0.0	2.6	7.8	37.7	51.9	100.0	77	
<u>All staff hold high expectations for student learning.</u>								
Kickoff 1999	0.0	2.3	11.4	43.2	43.2	100.0	88	0.1021
Autumn 2000	6.0	4.5	4.5	43.3	41.8	100.0	67	
Spring 2001	1.3	1.3	3.9	41.6	51.9	100.0	77	

(Continued.)

Table A.3 Continued.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	All Teachers	Number of Teachers	P-Value
<i>School Level Support for Educational Technology</i>								
<u>I have most of the educational technology I need.</u>								
Kickoff 1999	41.6	34.8	11.2	11.2	1.1	100.0	89	<.0001
Autumn 2000	6.0	22.4	14.9	37.3	19.4	100.0	67	
Spring 2001	2.6	7.8	16.9	50.6	22.1	100.0	77	
<u>Teachers have received the training they need to use computer technology in their classes.</u>								
Kickoff 1999	28.1	32.6	21.3	14.6	3.4	100.0	89	<.0001
Autumn 2000	9.0	14.9	23.9	40.3	11.9	100.0	67	
Spring 2001	5.2	13.0	20.8	40.3	20.8	100.0	77	
<u>Incorporating the Internet into our instructional programs is a high priority in my district.</u>								
Kickoff 1999	3.4	12.5	30.7	46.6	6.8	100.0	88	0.0622
Autumn 2000	3.0	11.9	29.9	37.3	17.9	100.0	67	
Spring 2001	0.0	9.1	20.8	44.2	26.0	100.0	77	
<u>We have the educational technology we need to support the instructional program.</u>								
Kickoff 1999	14.8	34.1	25.0	21.6	4.5	100.0	88	0.0001
Autumn 2000	4.5	28.4	17.9	29.9	19.4	100.0	67	
Spring 2001	2.6	18.2	15.6	36.4	27.3	100.0	77	
<u>The community is interested in supporting increased access to information technology.</u>								
Kickoff 1999	2.2	9.0	41.6	39.3	7.9	100.0	89	0.2131
Autumn 2000	7.5	4.5	29.9	44.8	13.4	100.0	67	
Spring 2001	2.6	3.9	28.6	53.2	11.7	100.0	77	

(Continued.)

Table A.3 Continued.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	All Teachers	Number of Teachers	P-Value
<i>Commitment to Teaching</i>								
<u>I look forward to each working day as a teacher.</u>								
Kickoff 1999	0.0	0.0	4.5	41.6	53.9	100.0	89	0.6452
Autumn 2000	1.5	1.5	6.0	46.3	44.8	100.0	67	
Spring 2001	0.0	2.6	5.2	46.8	45.5	100.0	77	
<u>If I had a chance to choose all over again, I would still choose teaching as a career.</u>								
Kickoff 1999	1.1	1.1	3.4	29.2	65.2	100.0	89	0.0762
Autumn 2000	1.5	3.0	11.9	37.3	46.3	100.0	67	
Spring 2001	0.0	3.9	9.1	45.5	41.6	100.0	77	
<i>School Climate</i>								
<u>The mission of this school is clearly defined.</u>								
Kickoff 1999	0.0	1.1	11.2	36.0	51.7	100.0	89	0.4132
Autumn 2000	1.5	0.0	7.5	44.8	46.3	100.0	67	
Spring 2001	0.0	0.0	3.9	42.9	53.2	100.0	77	
<u>There are open channels of communication among students, staff and administrators.</u>								
Kickoff 1999	0.0	0.0	13.5	42.7	43.8	100.0	89	0.0470
Autumn 2000	1.5	1.5	13.4	52.2	31.3	100.0	67	
Spring 2001	9.1	1.3	11.7	37.7	40.3	100.0	77	
<u>I feel what goes on in this school is my responsibility.</u>								
Kickoff 1999	0.0	2.2	9.0	49.4	39.3	100.0	89	0.4098
Autumn 2000	3.0	0.0	16.4	49.3	31.3	100.0	67	
Spring 2001	2.6	0.0	13.0	46.8	37.7	100.0	77	

(Continued.)

Table A.3 Continued.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	All Teachers	Number of Teachers	P-Value
<u>Most of the other teachers in this school know what my teaching goals are.</u>								
Kickoff 1999	0.0	12.4	12.4	66.3	9.0	100.0	89	0.0178
Autumn 2000	3.0	6.0	20.9	55.2	14.9	100.0	67	
Spring 2001	1.3	5.2	18.2	48.1	27.3	100.0	77	
<u>The principal of this school encourages teachers to talk with each other about instructional objectives.</u>								
Kickoff 1999	0.0	0.0	10.1	38.2	51.7	100.0	89	0.2852
Autumn 2000	4.5	4.5	7.5	38.8	44.8	100.0	67	
Spring 2001	1.3	3.9	9.1	32.5	53.2	100.0	77	
<u>Teachers in my school use faculty meetings to discuss ways to use computer technology in their classes.</u>								
Kickoff 1999	16.9	34.8	23.6	19.1	5.6	100.0	89	0.1147
Autumn 2000	17.9	20.9	29.9	29.9	1.5	100.0	67	
Spring 2001	10.4	20.8	31.2	35.1	2.6	100.0	77	
<i>Not in Scale</i>								
<u>My classes provide an extension of skills and concepts learned in previous grades.</u>								
Kickoff 1999	0.0	0.0	5.6	60.7	33.7	100.0	89	0.1802
Autumn 2000	0.0	0.0	9.0	44.8	46.3	100.0	67	
Spring 2001	1.3	0.0	3.9	45.5	49.4	100.0	77	
<u>Most computers will have to be funded from external grants.</u>								
Kickoff 1999	2.3	14.9	20.7	42.5	19.5	100.0	87	0.0267
Autumn 2000	4.5	3.0	13.4	56.7	22.4	100.0	67	
Spring 2001	1.3	2.6	13.0	55.8	27.3	100.0	77	

Table A.4
Teacher Frequency of Computer Use by Survey Administration, FY00 Teachers
(in Percent)

	Less than once a month	2-3 times a month	1-2 times a week	3-4 times a week	Every Day	All Teachers	Number of Teachers	P-Value
<i>Class Preparation Activities</i>								
<u>Search the Internet for educational materials</u>								
Kickoff, 1999	30.0	40.0	17.5	7.5	5.0	100.0	80	<.0001
Autumn 2000	0.0	3.0	13.4	49.3	34.3	100.0	67	
Spring 2001	0.0	1.3	7.8	32.5	58.4	100.0	77	
<u>Use the Internet to do background research for school lessons</u>								
Kickoff, 1999	39.1	36.2	14.5	7.2	2.9	100.0	69	<.0001
Autumn 2000	3.0	11.9	32.8	37.3	14.9	100.0	67	
Spring 2001	2.6	5.2	15.6	45.5	31.2	100.0	77	
<u>Exchange computer files with other teachers</u>								
Kickoff, 1999	42.3	38.5	11.5	3.8	3.8	100.0	26	0.1332
Autumn 2000	46.3	16.4	19.4	7.5	10.4	100.0	67	
Spring 2001	27.3	23.4	26.0	9.1	14.3	100.0	77	
<u>Make handouts for students using a computer</u>								
Kickoff, 1999	2.6	35.9	26.9	24.4	10.3	100.0	78	0.0913
Autumn 2000	7.5	17.9	35.8	23.9	14.9	100.0	67	
Spring 2001	3.9	15.6	31.2	31.2	18.2	100.0	77	
<u>Participate in online discussion groups addressing general educational issues</u>								
Kickoff, 1999	66.7	33.3	0.0	0.0	0.0	100.0	9	0.0052
Autumn 2000	77.6	16.4	3.0	0.0	3.0	100.0	67	
Spring 2001	44.2	27.3	14.3	3.9	10.4	100.0	77	
<u>Participate in online discussion groups addressing your subject or grade-level specialty</u>								
Kickoff, 1999	85.7	14.3	0.0	0.0	0.0	100.0	7	0.1061
Autumn 2000	77.6	14.9	3.0	3.0	1.5	100.0	67	
Spring 2001	54.5	18.2	11.7	7.8	7.8	100.0	77	

(Continued.)

Table A.4 Continued.

	Less than once a month	2-3 times a month	1-2 times a week	3-4 times a week	Every Day	All Teachers	Number of Teachers	P-Value
<u>Use camcorders, digital cameras, or scanners to prepare for class</u>								
Kickoff, 1999	36.7	43.3	16.7	3.3	0.0	100.0	30	0.0001
Autumn 2000	13.4	20.9	31.3	22.4	11.9	100.0	67	
Spring 2001	5.2	26.0	27.3	29.9	11.7	100.0	77	
<u>Use online reference materials and databases maintained by your library</u>								
Kickoff, 1999	47.7	31.8	13.6	6.8	0.0	100.0	44	0.2804
Autumn 2000	67.2	16.4	11.9	3.0	1.5	100.0	67	
Spring 2001	53.2	18.2	18.2	6.5	3.9	100.0	77	
<u>Write lesson plans or related notes on a computer</u>								
Kickoff, 1999	19.4	25.8	24.2	16.1	14.5	100.0	62	0.0126
Autumn 2000	23.9	14.9	20.9	13.4	26.9	100.0	67	
Spring 2001	16.9	3.9	23.4	23.4	32.5	100.0	77	
<u>Communicate with eMINTS teachers via e-mail</u>								
Autumn 2000	10.4	26.9	31.3	16.4	14.9	100.0	67	0.0001
Spring 2001	5.2	19.5	22.1	20.8	32.5	100.0	77	
<u>Communicate with non-eMINTS teachers via e-mail</u>								
Autumn 2000	19.4	13.4	20.9	16.4	29.9	100.0	67	0.0001
Spring 2001	7.8	11.7	15.6	26.0	39.0	100.0	77	
<i>Administrative Activities</i>								
<u>Use computers to record attendance or other administrative records</u>								
Kickoff, 1999	25.0	20.0	15.0	0.0	40.0	100.0	20	0.0941
Autumn 2000	61.2	4.5	10.4	3.0	20.9	100.0	67	
Spring 2001	42.9	7.8	15.6	2.6	31.2	100.0	77	
<u>Correspond with parents using e-mail</u>								
Kickoff, 1999	41.2	23.5	26.5	8.8	0.0	100.0	34	0.1289
Autumn 2000	47.8	23.9	13.4	10.4	4.5	100.0	67	
Spring 2001	26.0	23.4	26.0	16.9	7.8	100.0	77	
<i>Teaching Activities</i>								
<u>Use the Internet as part of classroom instruction</u>								
Kickoff, 1999	50.0	36.2	10.3	3.4	0.0	100.0	58	<.0001
Autumn 2000	1.5	1.5	10.4	44.8	41.8	100.0	67	
Spring 2001	0.0	2.6	2.6	32.5	62.3	100.0	77	

Table A.5
Teacher Computer Operations by Survey Administration, FY00 Teachers
(in Percent)

	No	Yes	All Teachers	Number of Teachers
<i>Basic Computer Operations</i>				
<u>Setup computer system and connect peripheral devices</u>				
Kickoff 1999	50.0	50.0	100.0	32
Autumn 2000	60.9	39.1	100.0	64
Spring 2001	42.9	57.1	100.0	77
<u>Install application software</u>				
Kickoff 1999	36.5	63.5	100.0	52
Autumn 2000	15.6	84.4	100.0	64
Spring 2001	3.9	96.1	100.0	77
<u>Create and maintain backups</u>				
Kickoff 1999	56.4	43.6	100.0	39
Autumn 2000	23.4	76.6	100.0	64
Spring 2001	11.7	88.3	100.0	77
<u>Cut, copy, and paste text</u>				
Kickoff 1999	35.6	64.4	100.0	59
Autumn 2000	6.3	93.8	100.0	64
Spring 2001	0.0	100.0	100.0	77
<u>Scan a document</u>				
Kickoff 1999	57.9	42.1	100.0	38
Autumn 2000	9.4	90.6	100.0	64
Spring 2001	1.3	98.7	100.0	77
<u>Create a graph from spreadsheet data</u>				
Kickoff 1999	60.7	39.3	100.0	28
Autumn 2000	39.1	60.9	100.0	64
Spring 2001	22.1	77.9	100.0	77
(Continued.)				

Table A.5 Continued.

	No	Yes	All Teachers	Number of Teachers
<u>Organize saved files on local hard drive or the network</u>				
Kickoff 1999	73.3	26.7	100.0	30
Autumn 2000	17.2	82.8	100.0	64
Spring 2001	3.9	96.1	100.0	77
<u>Perform basic folder operations</u>				
Kickoff 1999	46.0	54.0	100.0	63
Autumn 2000	9.4	90.6	100.0	64
Spring 2001	0.0	100.0	100.0	77
<i>Internet and eMail Operations</i>				
<u>Access a specific Web page (URL)</u>				
Kickoff 1999	22.2	77.8	100.0	63
Autumn 2000	6.3	93.8	100.0	64
Spring 2001	3.9	96.1	100.0	77
<u>Create and use bookmarks/favorites</u>				
Kickoff 1999	22.5	77.5	100.0	71
Autumn 2000	3.1	96.9	100.0	64
Spring 2001	0.0	100.0	100.0	77
<u>Copy a graphic from a Web site</u>				
Kickoff 1999	38.3	61.7	100.0	47
Autumn 2000	7.8	92.2	100.0	64
Spring 2001	1.3	98.7	100.0	77
<u>Download and decompress files</u>				
Kickoff 1999	82.8	17.2	100.0	29
Autumn 2000	37.5	62.5	100.0	64
Spring 2001	22.1	77.9	100.0	77
<u>Subscribe and unsubscribe from a mailing list</u>				
Kickoff 1999	58.3	41.7	100.0	36
Autumn 2000	35.9	64.1	100.0	64
Spring 2001	14.3	85.7	100.0	77
<u>Send and receive attachments in e-mail</u>				
Kickoff 1999	23.7	76.3	100.0	76
Autumn 2000	15.6	84.4	100.0	64
Spring 2001	6.5	93.5	100.0	77
(Continued.)				

Table A.5 Continued.

	No	Yes	All Teachers	Number of Teachers
<i>Multimedia Operations</i>				
<u>Reduce, enlarge, or crop a graphic</u>				
Kickoff 1999	56.8	43.2	100.0	37
Autumn 2000	25.0	75.0	100.0	64
Spring 2001	10.4	89.6	100.0	77
<u>Record an audio file or digitize a video clip</u>				
Kickoff 1999	78.6	21.4	100.0	14
Autumn 2000	64.1	35.9	100.0	64
Spring 2001	53.2	46.8	100.0	77

Table A.6
Teacher Computing Expertise by Survey Administration, FY00 Teachers
(in Percent)

	Novice	Apprentice	Practitioner	Expert	All Teachers	Number of Teachers	P-Value
<u>Troubleshoot common computer problems</u>							
Autumn 2000	10.4	29.9	46.3	13.4	100.0	67	0.0003
Spring 2001	1.3	9.1	62.3	27.3	100.0	77	
<u>Design and build a class web page</u>							
Autumn 2000	23.9	29.9	32.8	13.4	100.0	67	0.0003
Spring 2001	2.6	23.4	45.5	28.6	100.0	77	
<u>Use advanced features of a word processor</u>							
Autumn 2000	13.4	25.4	50.7	10.4	100.0	67	0.0707
Spring 2001	3.9	19.5	55.8	20.8	100.0	77	
<u>Create an electronic presentation</u>							
Autumn 2000	3.0	16.4	55.2	25.4	100.0	67	0.0004
Spring 2001	2.6	3.9	35.1	58.4	100.0	77	
<u>Encourage collaboration between students</u>							
Autumn 2000	1.5	11.9	68.7	17.9	100.0	67	0.0134
Spring 2001	1.3	2.6	57.1	39.0	100.0	77	
<u>Awareness of and ability to evaluate various uses of technology in society</u>							
Autumn 2000	14.9	37.3	41.8	6.0	100.0	67	<.0001
Spring 2001	1.3	11.7	63.6	23.4	100.0	77	
<u>Identify and locate technology resources and evaluate them for accuracy and suitability</u>							
Autumn 2000	3.0	26.9	61.2	9.0	100.0	67	0.0020
Spring 2001	1.3	9.1	59.7	29.9	100.0	77	
<u>Comfort in planning for management of technology in the classroom</u>							
Autumn 2000	10.4	23.9	50.7	14.9	100.0	67	<.0001
Spring 2001	1.3	2.6	51.9	44.2	100.0	77	
<u>Incorporate authentic tasks into lesson plans</u>							
Autumn 2000	7.5	23.9	59.7	9.0	100.0	67	0.0009
Spring 2001	1.3	7.8	62.3	28.6	100.0	77	

(Continued.)

Table A.6 Continued.

	Novice	Apprentice	Practitioner	Expert	All Teachers	Number of Teachers	P-Value
<u>Design lessons that require synthesis of information</u>							
Autumn 2000	11.9	25.4	49.3	13.4	100.0	67	0.0021
Spring 2001	2.6	9.1	59.7	28.6	100.0	77	
<u>Ask open-ended questions in class</u>							
Autumn 2000	1.5	17.9	58.2	22.4	100.0	67	0.0461
Spring 2001	1.3	5.2	55.8	37.7	100.0	77	
<u>Facilitate technology-enhanced experiences</u>							
Autumn 2000	4.5	37.3	50.7	7.5	100.0	67	<.0001
Spring 2001	1.3	9.1	66.2	23.4	100.0	77	
<u>Use technology to support learner-centered strategies to address the diverse needs of students</u>							
Autumn 2000	10.4	38.8	43.3	7.5	100.0	67	<.0001
Spring 2001	1.3	13.0	63.6	22.1	100.0	77	
<u>Familiarity with using scoring guides or rubrics to evaluate student work</u>							
Autumn 2000	11.9	23.9	50.7	13.4	100.0	67	0.0001
Spring 2001	0.0	9.1	55.8	35.1	100.0	77	
<u>Experience with evaluating group work</u>							
Autumn 2000	13.4	26.9	52.2	7.5	100.0	67	<.0001
Spring 2001	0.0	11.7	64.9	23.4	100.0	77	
<u>Use technology as a tool for collaboration with peers, parents and the larger community</u>							
Autumn 2000	7.5	32.8	52.2	7.5	100.0	67	0.0006
Spring 2001	0.0	14.3	62.3	23.4	100.0	77	
<u>Learn new software applications using a tutorial or by exploration</u>							
Autumn 2000	9.0	25.4	46.3	19.4	100.0	67	0.0023
Spring 2001	2.6	6.5	57.1	33.8	100.0	77	
<u>Addresses growth in use of educational technology</u>							
Autumn 2000	9.0	28.4	46.3	16.4	100.0	67	0.0086
Spring 2001	3.9	10.4	53.2	32.5	100.0	77	

(Continued.)

Table A.6 Continued.

	Novice	Apprentice	Practitioner	Expert	All Teachers	Number of Teachers	P-Value
<hr/>							
<u>Model and teach legal and ethical practices related to technology use</u>							
Autumn 2000	23.9	19.4	47.8	9.0	100.0	67	0.0055
Spring 2001	5.2	16.9	58.4	19.5	100.0	77	
<u>Ability to judge the validity of virus warnings</u>							
Autumn 2000	37.3	35.8	23.9	3.0	100.0	67	0.0006
Spring 2001	13.0	28.6	50.6	7.8	100.0	77	

Table A.7
 Teachers Rating of Teaching Effectiveness and Use by Survey Administration,
 FY01 Teachers
 (in Percent)

	Use of Activity	Number of Teachers	P-Value	Not Effective	Moderately Effective	Very Effective	All Teachers	Number of Teachers	P-Value
<i>Traditional Teaching Activities</i>									
<u>Lecture to the class as a whole</u>									
Kickoff 2000	86.7	98	0.4892	15.3	74.1	10.6	100.0	85	0.1972
Spring 2001	89.9	99		15.7	64.0	20.2	100.0	89	
<u>Have students use a textbook</u>									
Kickoff 2000	93.9	98	0.4322	16.3	72.8	10.9	100.0	92	0.2699
Spring 2001	90.9	99		20.0	62.2	17.8	100.0	90	
<u>Demonstrate a concept using the board or an overhead projector</u>									
Kickoff 2000	98.0	98	0.2539	1.0	59.4	39.6	100.0	96	0.1255
Spring 2001	94.9	99		1.1	44.7	54.3	100.0	94	
<u>Use supplementary printed materials other than textbooks</u>									
Kickoff 2000	98.0	98	0.1531	0.0	46.9	53.1	100.0	96	0.1790
Spring 2001	100.0	99		0.0	37.4	62.6	100.0	99	
<u>Have students complete a worksheet or workbook emphasizing routine practice</u>									
Kickoff 2000	94.9	98	0.1227	20.4	71.0	8.6	100.0	93	0.3919
Spring 2001	88.9	99		21.6	63.6	14.8	100.0	88	

(Continued.)

Table A.7 Continued.

	Use of Activity	Number of Teachers	P-Value	Not Effective	Moderately Effective	Very Effective	All Teachers	Number of Teachers	P-Value
<i>Inquiry-Based Teaching Activities</i>									
<u>Have students use materials from the Internet</u>									
Kickoff 2000	83.7	98	0.0043	6.1	54.9	39.0	100.0	82	0.0002
Spring 2001	96.0	99		0.0	32.6	67.4	100.0	95	
<u>Have students analyze and interpret information</u>									
Kickoff 2000	94.9	98	0.0228	4.3	50.5	45.2	100.0	93	0.0063
Spring 2001	100.0	99		0.0	35.4	64.6	100.0	99	
<u>Have students confer with other students about their work</u>									
Kickoff 2000	93.9	98	0.0526	7.6	63.0	29.3	100.0	92	0.0013
Spring 2001	99.0	99		2.0	43.9	54.1	100.0	98	
<u>Have students evaluate the work of other students</u>									
Kickoff 2000	91.8	98	0.2264	14.4	66.7	18.9	100.0	90	0.0007
Spring 2001	96.0	99		3.2	56.8	40.0	100.0	95	
<u>Have students evaluate and improve their own work</u>									
Kickoff 2000	94.9	98	0.0947	7.5	61.3	31.2	100.0	93	0.0004
Spring 2001	99.0	99		1.0	41.8	57.1	100.0	98	
<u>Work with small groups of students</u>									
Kickoff 2000	99.0	98	0.3136	1.0	27.8	71.1	100.0	97	0.3197
Spring 2001	100.0	99		0.0	21.2	78.8	100.0	99	
<u>Have students respond orally to open-ended questions</u>									
Kickoff 2000	92.9	98	0.0292	4.4	52.7	42.9	100.0	91	0.0944
Spring 2001	99.0	99		2.0	39.8	58.2	100.0	98	
<u>Have students work on problems for which there are several answers</u>									
Kickoff 2000	95.9	98	0.1705	7.4	51.1	41.5	100.0	94	0.0058
Spring 2001	99.0	99		1.0	37.8	61.2	100.0	98	

(Continued.)

Table A.7 Continued.

	Use of Activity	Number of Teachers	P-Value	Not Effective	Moderately Effective	Very Effective	All Teachers	Number of Teachers	P-Value
<u>Have students work on problems for which there are several methods of solution</u>									
Kickoff 2000	87.8	98	0.0015	5.8	50.0	44.2	100.0	86	0.2926
Spring 2001	99.0	99		2.0	45.9	52.0	100.0	98	
<u>Have students put events or things in order and explain why they were organized</u>									
Kickoff 2000	96.9	98	0.0794	3.2	53.7	43.2	100.0	95	0.0313
Spring 2001	100.0	99		0.0	41.4	58.6	100.0	99	
<u>Demonstrate a concept using manipulatives, models other tools or objects</u>									
Kickoff 2000	96.9	98	0.3075	0.0	25.3	74.7	100.0	95	0.5288
Spring 2001	99.0	99		0.0	21.4	78.6	100.0	98	
<u>Have students use on-line reference materials maintained by your library</u>									
Kickoff 2000	62.2	98	0.0109	6.6	62.3	31.1	100.0	61	0.3245
Spring 2001	78.8	99		5.1	51.3	43.6	100.0	78	
<u>Have groups of students develop their own class projects</u>									
Kickoff 2000	86.7	98	0.3523	4.7	44.7	50.6	100.0	85	0.0304
Spring 2001	90.9	99		2.2	27.8	70.0	100.0	90	

Table A.8
MSIP Opinion Scales by Program Year
FY01 Teachers

	Mean	Standard Deviation	Minimum	Maximum	Number of Teachers	P-Value	Number of Items	Alpha	
<i>Instructional Efficacy</i>								5	0.8105
Kickoff 2000	4.01	0.67	1.2	5	98	<.0001			
Spring 2001	4.32	0.45	2.2	5	99				
<i>School Level Technology Support</i>								5	0.7284
Kickoff 2000	2.82	0.72	1	4.2	98	<.0001			
Spring 2001	3.37	0.8	1	5	99				
<i>Commitment to Teaching</i>								2	0.7648
Kickoff 2000	4.5	0.54	2	5	98	0.8739			
Spring 2001	4.38	0.74	1	5	99				
<i>School Climate</i>								6	0.7975
Kickoff 2000	3.76	0.6	1	5	98	0.0018			
Spring 2001	3.87	0.65	2	5	99				

Table A.9
MSIP Opinion Items by Program Year
FY01 Teachers
(in Percent)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	All Teachers	Number of Teachers	P-Value
<i>Instructional Efficacy</i>								
<u>Students are frequently provided information about their performance.</u>								
Kickoff 2000	3.1	1.0	10.2	46.9	38.8	100.0	98	0.0068
Spring 2001	1.0	0.0	2.0	35.4	61.6	100.0	99	
<u>Students are held accountable for doing quality work.</u>								
Kickoff 2000	3.1	0.0	4.1	37.8	55.1	100.0	98	0.0058
Spring 2001	1.0	0.0	0.0	22.2	76.8	100.0	99	
<u>Students give evidence of being able to apply what they have learned in previous grades.</u>								
Kickoff 2000	1.0	3.1	20.4	56.1	19.4	100.0	98	0.0119
Spring 2001	1.0	1.0	5.1	62.6	30.3	100.0	99	
<u>Students are taught critical-thinking skills in this school.</u>								
Kickoff 2000	2.0	7.1	25.5	48.0	17.3	100.0	98	0.0189
Spring 2001	0.0	2.0	13.1	57.6	27.3	100.0	99	
<u>All staff hold high expectations for student learning.</u>								
Kickoff 2000	3.1	8.2	16.3	43.9	28.6	100.0	98	0.8128
Spring 2001	1.0	6.1	17.2	43.4	32.3	100.0	99	

(Continued.)

Table A.9 Continued.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	All Teachers	Number of Teachers	P-Value
<i>School Level Technology Support</i>								
<u>I have most of the educational technology I need</u>								
Kickoff 2000	41.8	29.6	12.2	16.3	0.0	100.0	98	<.0001
Spring 2001	10.1	20.2	17.2	34.3	18.2	100.0	99	
<u>Teachers have received the training they need to use computer technology in their classes.</u>								
Kickoff 2000	30.6	20.4	28.6	19.4	1.0	100.0	98	0.0003
Spring 2001	15.2	18.2	17.2	42.4	7.1	100.0	99	
<u>Incorporating the Internet into our instructional programs is a high priority in my district.</u>								
Kickoff 2000	6.1	7.1	31.6	40.8	14.3	100.0	98	0.1124
Spring 2001	8.1	10.1	16.2	43.4	22.2	100.0	99	
<u>We have the educational technology we need to support the instructional program.</u>								
Kickoff 2000	17.3	22.4	28.6	26.5	5.1	100.0	98	0.0083
Spring 2001	12.1	14.1	16.2	46.5	11.1	100.0	99	
<u>The community is interested in supporting increased access to information technology.</u>								
Kickoff 2000	4.1	4.1	46.9	39.8	5.1	100.0	98	0.3280
Spring 2001	5.1	2.0	34.3	50.5	8.1	100.0	99	
<i>Commitment to Teaching</i>								
<u>I look forward to each working day as a teacher.</u>								
Kickoff 2000	0.0	1.0	4.1	45.9	49.0	100.0	98	0.4047
Spring 2001	3.0	1.0	7.1	41.4	47.5	100.0	99	
<u>If I had a chance to choose all over again, I would still choose teaching as a career.</u>								
Kickoff 2000	0.0	1.0	4.1	31.6	63.3	100.0	98	0.7564
Spring 2001	1.0	1.0	7.1	31.3	59.6	100.0	99	

(Continued.)

Table A.9 Continued.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	All Teachers	Number of Teachers	P-Value
<i>School Climate</i>								
<u>The mission of this school is clearly defined.</u>								
Kickoff 2000	1.0	1.0	11.2	42.9	43.9	100.0	98	0.8491
Spring 2001	1.0	2.0	9.1	37.4	50.5	100.0	99	
<u>There are open channels of communication among students, staff and administrators.</u>								
Kickoff 2000	1.0	5.1	16.3	55.1	22.4	100.0	98	0.7245
Spring 2001	3.0	8.1	14.1	50.5	24.2	100.0	99	
<u>I feel what goes on in this school is my responsibility.</u>								
Kickoff 2000	1.0	0.0	9.2	62.2	27.6	100.0	98	0.4209
Spring 2001	1.0	2.0	11.1	51.5	34.3	100.0	99	
<u>Most of the other teachers in this school know what my teaching goals are.</u>								
Kickoff 2000	3.1	10.2	28.6	49.0	9.2	100.0	98	0.0576
Spring 2001	2.0	6.1	14.1	62.6	15.2	100.0	99	
<u>The principal of this school encourages teachers to talk with each other about instructional objectives.</u>								
Kickoff 2000	3.1	3.1	11.2	44.9	37.8	100.0	98	0.8580
Spring 2001	3.0	2.0	8.1	42.4	44.4	100.0	99	
<u>Teachers in my school use faculty meetings to discuss ways to use computer technology in their classes.</u>								
Kickoff 2000	25.5	16.3	36.7	17.3	4.1	100.0	98	0.1197
Spring 2001	19.2	20.2	25.3	31.3	4.0	100.0	99	
<i>Not in Scale</i>								
<u>My classes provide an extension of skills and concepts learned in previous grade</u>								
Kickoff 2000	1.0	0.0	6.1	57.1	35.7	100.0	98	0.2209
Spring 2001	1.0	0.0	7.1	42.4	49.5	100.0	99	
<u>Most computers will have to be funded from external grants.</u>								
Kickoff 2000	2.0	6.1	25.5	37.8	28.6	100.0	98	0.0077
Spring 2001	1.0	7.1	9.1	33.3	49.5	100.0	99	

Table A.10
Teacher Frequency of Computer Use by Survey Administration, FY01 Teachers
(in Percent)

	Less than once a month	2-3 times a month	1-2 times a week	3-4 times a week	Every day	All Teachers	Number of Teachers	P-Value
<i>Class Preparation Activities</i>								
<u>Search the Internet for educational materials</u>								
Kickoff 2000	16.3	27.6	26.5	22.4	7.1	100.0	98	<.0001
Spring 2001	1.0	1.0	7.1	28.3	62.6	100.0	99	
<u>Use the Internet to do background research for school lessons</u>								
Kickoff 2000	25.5	32.7	24.5	12.2	5.1	100.0	98	<.0001
Spring 2001	4.0	2.0	17.2	36.4	40.4	100.0	99	
<u>Exchange computer files with other teachers</u>								
Kickoff 2000	75.5	11.2	11.2	2.0	0.0	100.0	98	<.0001
Spring 2001	27.3	20.2	33.3	13.1	6.1	100.0	99	
<u>Make handouts for students using a computer</u>								
Kickoff 2000	19.4	21.4	26.5	20.4	12.2	100.0	98	<.0001
Spring 2001	3.0	4.0	23.2	46.5	23.2	100.0	99	
<u>Participate in on-line discussion groups addressing general educational issues</u>								
Kickoff 2000	87.8	6.1	1.0	1.0	4.1	100.0	98	<.0001
Spring 2001	46.5	29.3	7.1	10.1	7.1	100.0	99	
<u>Participate in on-line discussion groups addressing your subject or grade-level specialty</u>								
Kickoff 2000	92.9	2.0	1.0	2.0	2.0	100.0	98	<.0001
Spring 2001	50.5	22.2	8.1	11.1	8.1	100.0	99	
<u>Communicate with eMINTS teachers via e-mail</u>								
Kickoff 2000	90.8	2.0	4.1	1.0	2.0	100.0	98	<.0001
Spring 2001	12.1	16.2	26.3	20.2	25.3	100.0	99	
<u>Communicate with non-eMINTS teachers via e-mail</u>								
Kickoff 2000	44.9	14.3	8.2	16.3	16.3	100.0	98	<.0001
Spring 2001	14.1	13.1	22.2	23.2	27.3	100.0	99	

(Continued.)

Table A.10 Continued.

	Less than once a month	2-3 times a month	1-2 times a week	3-4 times a week	Every day	All Teachers	Number of Teachers	P-Value
<u>Use camcorders, digital cameras, or scanners to prepare for class</u>								
Kickoff 2000	75.5	15.3	7.1	1.0	1.0	100.0	98	<.0001
Spring 2001	5.1	19.2	33.3	27.3	15.2	100.0	99	
<u>Use on-line reference materials and databases maintained by your library</u>								
Kickoff 2000	75.5	16.3	5.1	3.1	0.0	100.0	98	0.0018
Spring 2001	52.5	18.2	11.1	15.2	3.0	100.0	99	
<u>Write lesson plans or related notes on a computer</u>								
Kickoff 2000	34.7	14.3	16.3	14.3	20.4	100.0	98	<.0001
Spring 2001	4.0	9.1	16.2	28.3	42.4	100.0	99	
<i>Administrative Activities</i>								
<u>Use computers to record attendance or other administrative records</u>								
Kickoff 2000	55.1	6.1	9.2	5.1	24.5	100.0	98	0.2684
Spring 2001	46.5	5.1	19.2	8.1	21.2	100.0	99	
<u>Correspond with parents using e-mail</u>								
Kickoff 2000	76.5	13.3	5.1	5.1	0.0	100.0	98	<.0001
Spring 2001	43.4	21.2	22.2	13.1	0.0	100.0	99	
<i>Teaching Activities</i>								
<u>Use the Internet as part of classroom instruction</u>								
Kickoff 2000	42.9	25.5	20.4	6.1	5.1	100.0	98	<.0001
Spring 2001	3.0	3.0	4.0	39.4	50.5	100.0	99	

Table A.11
Teacher Computer Operation by Survey Administration, FY01 Teachers
(in Percent)

	No	Yes	All Teachers	Number of Teachers	P-Value
<i>Basic Computer Operations</i>					
<u>Setup computer system and connect peripheral devices</u>					
Kickoff 2000	56.1	43.9	100.0	98	0.0126
Spring 2001	38.4	61.6	100.0	99	
<u>Install application software</u>					
Kickoff 2000	34.7	65.3	100.0	98	<.0001
Spring 2001	6.1	93.9	100.0	99	
<u>Create and maintain backups</u>					
Kickoff 2000	59.2	40.8	100.0	98	<.0001
Spring 2001	30.3	69.7	100.0	99	
<u>Cut, copy, and paste text</u>					
Kickoff 2000	26.5	73.5	100.0	98	<.0001
Spring 2001	1.0	99.0	100.0	99	
<u>Scan a document</u>					
Kickoff 2000	60.2	39.8	100.0	98	<.0001
Spring 2001	8.1	91.9	100.0	99	
<u>Create a graph from spreadsheet data</u>					
Kickoff 2000	73.5	26.5	100.0	98	<.0001
Spring 2001	29.3	70.7	100.0	99	
<u>Organize saved files on local hard drive or the network</u>					
Kickoff 2000	44.9	55.1	100.0	98	<.0001
Spring 2001	2.0	98.0	100.0	99	
<u>Perform basic folder operations</u>					
Kickoff 2000	37.8	62.2	100.0	98	<.0001
Spring 2001	1.0	99.0	100.0	99	
<u>Work with multiple applications</u>					
Kickoff 2000	50.0	50.0	100.0	98	<.0001
Spring 2001	4.0	96.0	100.0	99	

(Continued.)

Table A.11 Continued.

	No	Yes	All Teachers	Number of Teachers	P-Value
<i>Internet and E-mail Operation</i>					
<u>Access a specific Web page</u>					
Kickoff 2000	13.3	86.7	100.0	98	0.0008
Spring 2001	1.0	99.0	100.0	99	
<u>Create and use bookmarks/favorites</u>					
Kickoff 2000	15.3	84.7	100.0	98	<.0001
Spring 2001	0.0	100.0	100.0	99	
<u>Copy a graphic from a Web site</u>					
Kickoff 2000	48.0	52.0	100.0	98	<.0001
Spring 2001	3.0	97.0	100.0	99	
<u>Download and decompress files</u>					
Kickoff 2000	68.4	31.6	100.0	98	<.0001
Spring 2001	28.3	71.7	100.0	99	
<u>Subscribe and unsubscribe from a mailing list</u>					
Kickoff 2000	62.2	37.8	100.0	98	<.0001
Spring 2001	31.3	68.7	100.0	99	
<u>Send and receive e-mail messages</u>					
Kickoff 2000	5.1	94.9	100.0	98	0.0228
Spring 2001	0.0	100.0	100.0	99	
<u>Send and receive attachments in e-mail</u>					
Kickoff 2000	49.0	51.0	100.0	98	<.0001
Spring 2001	10.1	89.9	100.0	99	
<i>Multimedia Operations</i>					
<u>Reduce, enlarge, or crop a graphic</u>					
Kickoff 2000	67.3	32.7	100.0	98	<.0001
Spring 2001	17.2	82.8	100.0	99	
<u>Record an audio file or digitize a video clip</u>					
Kickoff 2000	90.8	9.2	100.0	98	0.0003
Spring 2001	70.7	29.3	100.0	99	

Table A.12
Teacher Computing Expertise by Survey Administration, FY01 Teachers
(in Percent)

	Novice	Apprentice	Practitioner	Expert	All Teachers	Number of Teachers	P-Value
<u>Troubleshoot common computer problems</u>							
Kickoff 2000	38.8	33.7	22.4	5.1	100.0	98	<.0001
Spring 2001	3.0	18.2	62.6	16.2	100.0	99	
<u>Design and build a class web page</u>							
Kickoff 2000	71.4	14.3	11.2	3.1	100.0	98	<.0001
Spring 2001	8.1	26.3	52.5	13.1	100.0	99	
<u>Use advanced features of a word processor</u>							
Kickoff 2000	35.7	31.6	25.5	7.1	100.0	98	<.0001
Spring 2001	4.0	18.2	57.6	20.2	100.0	99	
<u>Create an electronic presentation</u>							
Kickoff 2000	57.1	17.3	18.4	7.1	100.0	98	<.0001
Spring 2001	1.0	13.1	53.5	32.3	100.0	99	
<u>Encourage collaboration between students</u>							
Kickoff 2000	13.3	32.7	44.9	9.2	100.0	98	<.0001
Spring 2001	1.0	5.1	58.6	35.4	100.0	99	
<u>Awareness of and ability to evaluate various uses of technology in society</u>							
Kickoff 2000	36.7	36.7	25.5	1.0	100.0	98	<.0001
Spring 2001	2.0	17.2	70.7	10.1	100.0	99	
<u>Identify and locate technology resources and evaluate them for accuracy and suitability</u>							
Kickoff 2000	41.8	31.6	23.5	3.1	100.0	98	<.0001
Spring 2001	2.0	19.2	62.6	16.2	100.0	99	
<u>Comfort in planning for management of technology in the classroom</u>							
Kickoff 2000	44.9	32.7	21.4	1.0	100.0	98	<.0001
Spring 2001	1.0	15.2	67.7	16.2	100.0	99	

(Continued.)

Table A.12 Continued.

	Novice	Apprentice	Practitioner	Expert	All Teachers	Number of Teachers	P-Value
<u>Comfort in planning for management of technology in the classroom</u>							
Kickoff 2000	44.9	32.7	21.4	1.0	100.0	98	<.0001
Spring 2001	1.0	15.2	67.7	16.2	100.0	99	
<u>Incorporate authentic tasks into lesson plans</u>							
Kickoff 2000	20.4	35.7	40.8	3.1	100.0	98	<.0001
Spring 2001	1.0	18.2	66.7	14.1	100.0	99	
<u>Design lessons that require synthesis of information</u>							
Kickoff 2000	25.5	39.8	31.6	3.1	100.0	98	<.0001
Spring 2001	3.0	15.2	69.7	12.1	100.0	99	
<u>Ask open-ended questions in class</u>							
Kickoff 2000	6.1	36.7	46.9	10.2	100.0	98	<.0001
Spring 2001	0.0	9.1	67.7	23.2	100.0	99	
<u>Facilitate technology-enhanced experiences</u>							
Kickoff 2000	54.1	28.6	16.3	1.0	100.0	98	<.0001
Spring 2001	3.0	19.2	63.6	14.1	100.0	99	
<u>Use technology to support learner-centered strategies to address the diverse needs of students</u>							
Kickoff 2000	54.1	28.6	14.3	3.1	100.0	98	<.0001
Spring 2001	3.0	27.3	58.6	11.1	100.0	99	
<u>Familiarity with using scoring guides or rubrics to evaluate student work</u>							
Kickoff 2000	7.1	36.7	40.8	15.3	100.0	98	<.0001
Spring 2001	1.0	12.1	56.6	30.3	100.0	99	
<u>Experience with evaluating group work</u>							
Kickoff 2000	20.4	40.8	32.7	6.1	100.0	98	<.0001
Spring 2001	3.0	16.2	62.6	18.2	100.0	99	

(Continued.)

Table A.12 Continued.

	Novice	Apprentice	Practitioner	Expert	All Teachers	Number of Teachers	P-Value
<u>Use technology as a tool for collaboration with peers, parents and the larger community</u>							
Kickoff 2000	55.1	20.4	20.4	4.1	100.0	98	<.0001
Spring 2001	3.0	22.2	61.6	13.1	100.0	99	
<u>Learn new software applications using a tutorial or by exploration</u>							
Kickoff 2000	32.7	33.7	28.6	5.1	100.0	98	<.0001
Spring 2001	2.0	16.2	61.6	20.2	100.0	99	
<u>Addresses growth in use of educational technology</u>							
Kickoff 2000	51.0	23.5	20.4	5.1	100.0	98	<.0001
Spring 2001	4.0	29.3	56.6	10.1	100.0	99	
<u>Model and teach legal and ethical practices related to technology use</u>							
Kickoff 2000	59.2	27.6	10.2	3.1	100.0	98	<.0001
Spring 2001	10.1	25.3	51.5	13.1	100.0	99	
<u>Ability to judge the validity of virus warnings</u>							
Kickoff 2000	72.4	13.3	13.3	1.0	100.0	98	<.0001
Spring 2001	25.3	31.3	38.4	5.1	100.0	99	