



Analysis of 2003 MAP Results for eMINTS Students



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This report presents MAP test results from the FY02 eMINTS cohort. The analysis highlights statistically significant differences on the Communication Arts, Mathematics and Social Studies MAP tests, but not on the 3rd grade Science test. These differences can be seen for all students, for low income students and for special education students. There are also significant differences for students enrolled in Schoolwide Title I schools.

Introduction

This is the third annual report of the impact of the eMINTS program on student performance on the Missouri Assessment Program (MAP) tests. The report analyzes MAP test results from the thirty-nine schools participating in the FY02 cohort. The analysis reports the observed MAP score differences between eMINTS and non-eMINTS students in the 2002-2003 school year.

Student MAP scores from 39 schools participating in the FY02 cohort of the eMINTS program comprise the basis of these results. These schools applied to participate in the program in the spring of 2001 and participating teachers completed their professional development in the 2002-2003 school year. The report describes differences between eMINTS and non-eMINTS students in the third and fourth grades in the eMINTS schools, differences for students eligible for the free and reduced program, differences for students with individual education plans (IEPs) and differences for eMINTS students enrolled in Title I schools.

Focus on Student Performance, not Instructional Practice

One major change from previous reports concerns the measurement of the instructional practices of eMINTS teachers. In previous years the instructional practices of eMINTS teachers were measured either through direct observation of classroom lessons by members of the eMINTS evaluation project or through a summary assessment conducted by the program's Cluster Instructional Specialists (CIS). These assessments measured the extent that eMINTS teachers' classroom practice conformed to the eMINTS instructional model. In the first two cohorts the students of teachers who consistently applied the eMINTS instructional model scored higher on the MAP tests than did the students of eMINTS teachers who did not use this model in their instructional practice.

In each year this measurement was a "point estimate" of a two-year process of teacher development. In January 2003 the evaluation project introduced a new system to collect CIS ratings of teachers on the *Hallmarks of an Effective eMINTS Classroom* rubric over the second year of the FY02 teachers' eMINTS professional development. Unfortunately,

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

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

this system did not produce a reliable assessment of the instructional practices of FY02 teachers. Because of this, the current analysis does not include an assessment of instructional practices. The problems identified in the system's application to the FY02 eMINTS cohort have been addressed and the evaluation project expects to describe the development of eMINTS instructional practices for the FY03 cohort of teachers.

The analytical focus of this report is on student MAP test performance among students in eMINTS classrooms versus non-eMINTS classrooms. The performance of students enrolled in the eMINTS classrooms is compared with the performance of students not in the eMINTS classroom, but enrolled in the same grade and school. Data are collected at the individual student level and aggregated across all FY02 schools, providing an aggregate comparison of students in eMINTS classrooms and students not in eMINTS classrooms. This comparison is the basis for the estimates of the general impact of the eMINTS program on student performance.

The analysis also considers the performance differences by eMINTS enrollment for students eligible for the free and reduced lunch program, students with individual education plans and for students enrolled in Title I schools.

Schools, Teachers and Students in the FY02 eMINTS Cohort

The FY02 eMINTS cohort consists of 39 schools with eMINTS classrooms in the third and fourth grades. Twenty-three of these schools had eMINTS classrooms in both third and fourth grades, three schools had eMINTS classrooms in the third grade only and thirteen had eMINTS classrooms in the fourth grade only.

MAP test results from a total of 3416 students in 180 classrooms are used in the analysis. Table 1 presents the breakdown of students and classrooms by grade level and eMINTS enrollment. Approximately half of the students in the analysis were enrolled in eMINTS classrooms.

Table 1
FY02 Classrooms by Grade and eMINTS Enrollment

	Number of Classrooms	Number of Students	Number of Classrooms	Number of Students
	<i>Communication Arts</i>		<i>Science</i>	
non-eMINTS	37	659	37	657
eMINTS	36	671	36	669
Total	73	1330	73	1326
	<i>Mathematics</i>		<i>Social Studies</i>	
non-eMINTS	48	951	48	955
eMINTS	59	1135	57	1103
Total	107	2086	105	2058

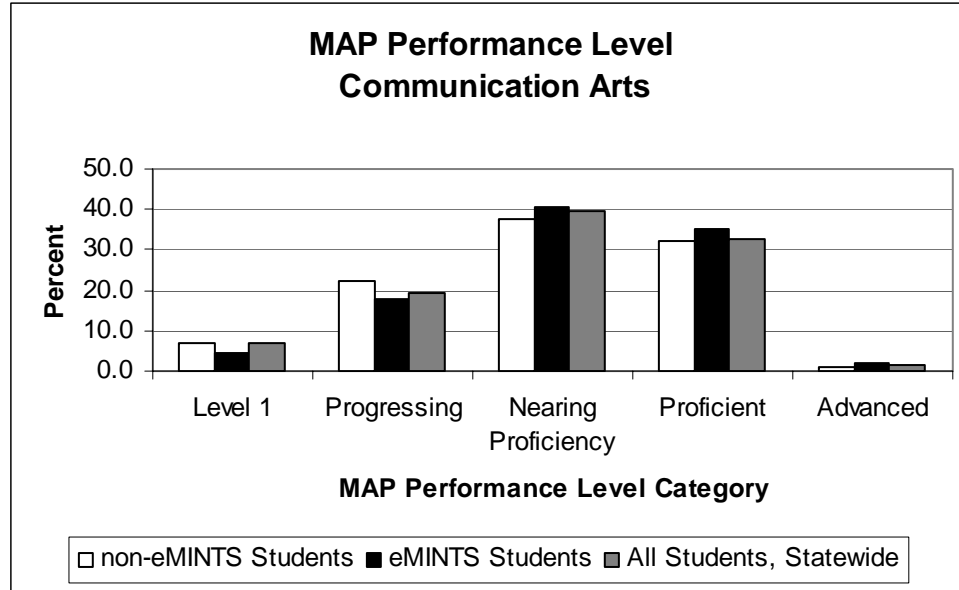
Two Perspectives on MAP Scores

This report analyzes scores on the four MAP tests administered in the third and fourth grade. Students are tested in Communication Arts and Science in the third grade and in Mathematics and Social Studies in the fourth grade. Students are not tested on the same subjects in consecutive years. In this report MAP scores are reported in two ways: using the percentage distribution of the five-category Performance Level scale and using the total MAP score.

MAP Performance Level by eMINTS Enrollment

The first analysis compares differences in MAP Performance Level scores for students enrolled in eMINTS classrooms and students not enrolled in eMINTS classrooms with the statewide performance levels on each MAP test. These analyses show that a higher proportion of students in eMINTS classrooms scored in the top two performance levels than did students in non-eMINTS classrooms on every test except Science. They also show that a higher proportion of students in eMINTS classrooms scored in the top two levels than did students statewide.

Figure 1
MAP Performance Level by eMINTS enrollment: Communication Arts

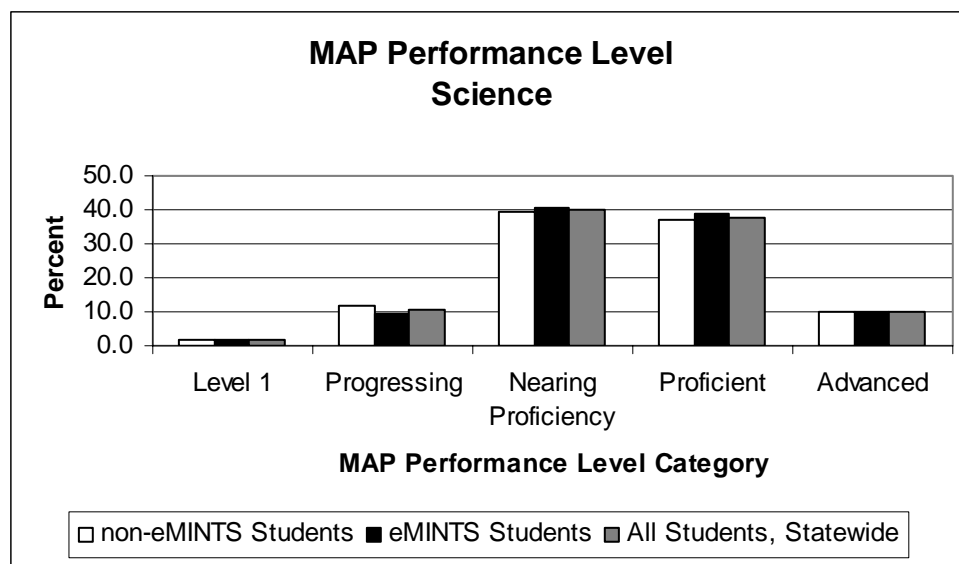


	non-eMINTS Students	eMINTS Students	All Students, Statewide
Level 1	7.1	4.5	7.2
Progressing	22.3	18.0	19.3
Nearing Proficiency	37.8	40.5	39.5
Proficient	32.0	35.2	32.7
Advanced	0.8	1.8	1.4
Total	100.0	100.0	100.0
Number of Students	659	671	64897
P-value	0.0218		

Results for Communication Arts

Figure 1 presents results for the Communication Arts MAP test. The eMINTS-non-eMINTS difference is statistically significant. The magnitude of the difference between eMINTS and non-eMINTS students in the “Proficient” category is approximately three percentage points. There is a similar difference between eMINTS students and the population of all students.

Figure 2
MAP Performance Level by eMINTS enrollment: Science

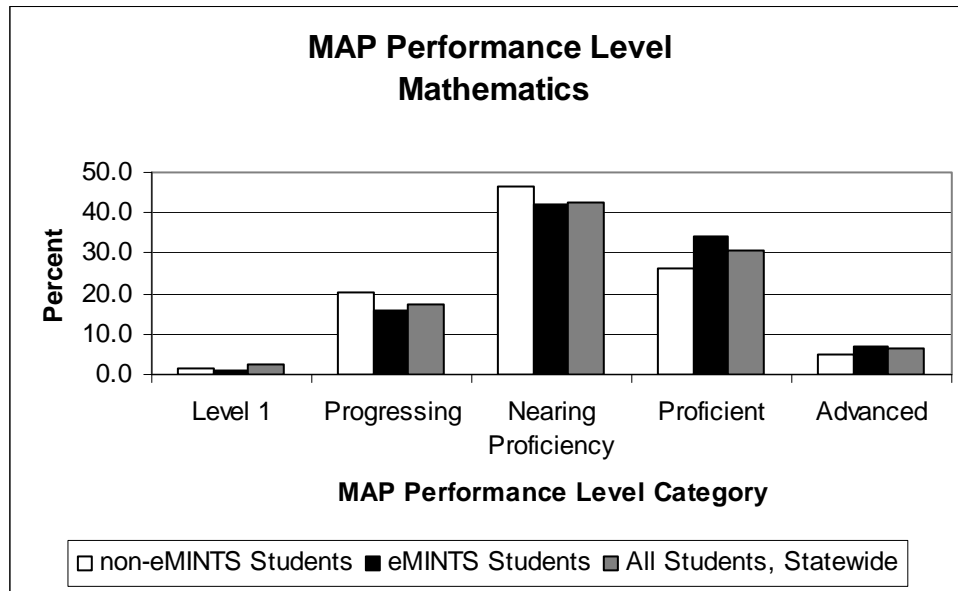


	non-eMINTS Students	eMINTS Students	All Students, Statewide
Level 1	2.0	1.5	1.7
Progressing	11.6	9.1	10.3
Nearing Proficiency	39.6	40.5	40.0
Proficient	37.1	38.7	37.9
Advanced	9.7	10.2	10.0
Total	100.0	100.0	100.0
Number of Students	657	669	58093
P-value	0.6054		

Results for Science

Figure 2 presents results for the MAP Science test. There are no statistically significant differences between eMINTS and non-eMINTS students. The overall distribution of MAP Performance Level for students in the eMINTS classrooms is essentially the same as the statewide distribution.

Figure 3
MAP Performance Level by eMINTS enrollment: Mathematics

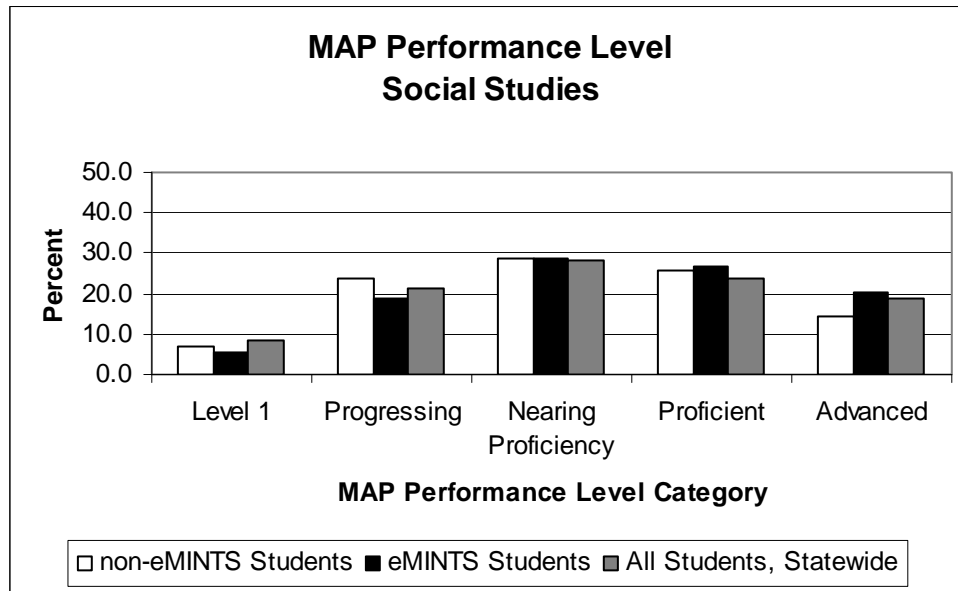


	non-eMINTS Students	eMINTS Students	All Students, Statewide
Level 1	1.7	1.0	2.7
Progressing	20.5	15.8	17.6
Nearing Proficiency	46.6	42.3	42.6
Proficient	26.3	34.0	30.6
Advanced	4.9	7.0	6.6
Total	100.0	100.0	100.0
Number of Students	951	1135	68627
P-value	<0.0001		

Results for Mathematics

Figure 3 presents results for the MAP Mathematics test. The difference between eMINTS and non-eMINTS students is statistically significant. The magnitude of the difference between eMINTS and non-eMINTS students in the “Proficient” category is nearly eight percentage points. The percentage difference in the Proficient category between students in eMINTS classrooms and all students statewide is about four points.

Figure 4
MAP Performance Level by eMINTS enrollment: Social Studies



	non-eMINTS Students	eMINTS Students	All Students, Statewide
Level 1	6.8	5.6	8.5
Progressing	24.0	18.7	21.1
Nearing Proficiency	28.9	28.6	28.1
Proficient	25.8	26.7	23.8
Advanced	14.6	20.3	18.6
Total	100.0	100.0	100.0
Number of Students	955	1103	59117
P-value	0.0014		

Results for Social Studies

Figure 4 presents results for the MAP Social Studies test. The difference between eMINTS and non-eMINTS students is statistically significant. The magnitude of the difference between eMINTS and non-eMINTS students in the “Advanced” category is slightly less than six percentage points. The percentage difference in the Advanced between students in eMINTS classrooms and all students statewide is less than two points.

Total MAP Scores by eMINTS Enrollment

The next section outlines total MAP score differences by student enrollment in an eMINTS classroom. Figures 5 through 8 present the distribution of MAP scores for students enrolled in eMINTS classrooms, for student enrolled in non-eMINTS classrooms, for all students in eMINTS schools and for all students, statewide.¹ The plots put mean differences into context by presenting differences, confidence intervals, T-test results and estimates of effect size.

Total MAP Scores by eMINTS Enrollment: Communication Arts

Figure 5 presents the results for the MAP Communication Arts test. On average, the differences in scores for students enrolled in eMINTS classrooms were 5.94 points higher than that of students in enrolled in non-eMINTS classrooms. This difference is statistically significant and accounts for 18.8 percent of the variance in student MAP scores.

Students in enrolled in eMINTS classrooms also scored an average of 4.16 points higher than the statewide average MAP score. Looking at the bi-plot, it is clear that this difference is also statistically significant.

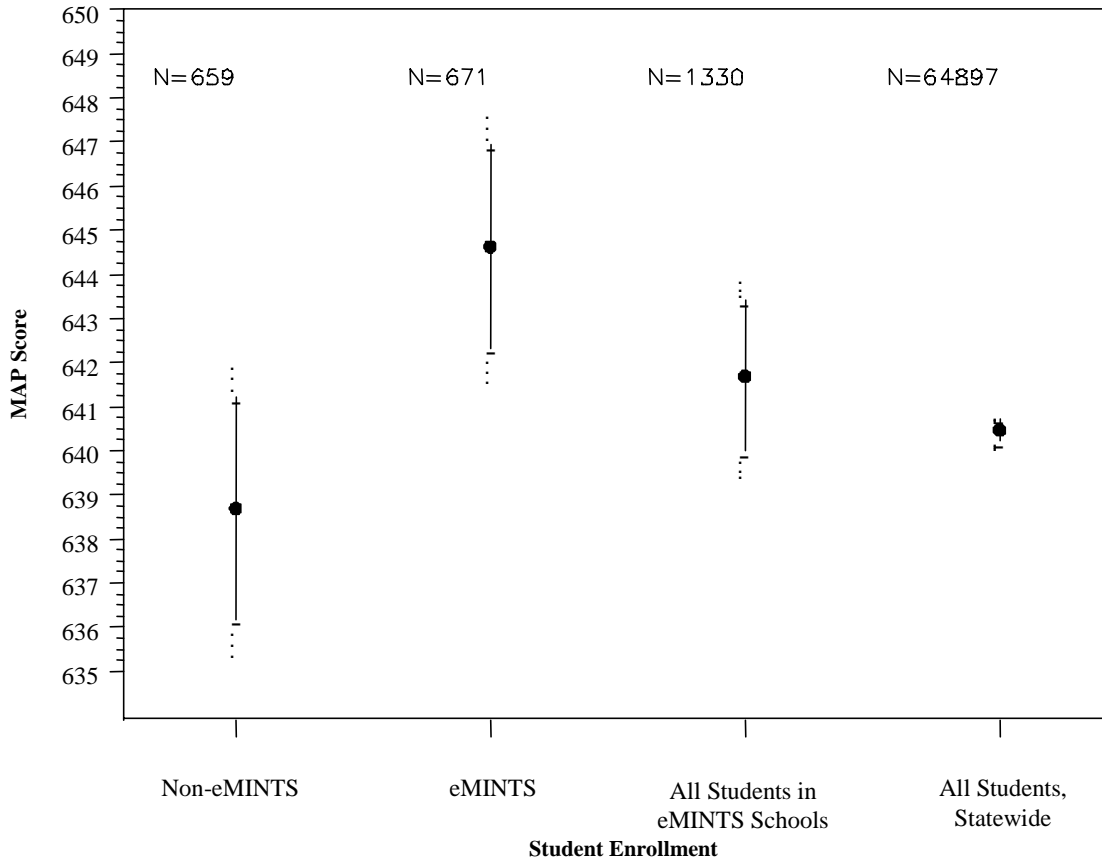
Total MAP Scores by eMINTS Enrollment: Science

Figure 6 presents the results for the MAP Science test. Unlike the Communication Arts test, neither the differences between students enrolled in eMINTS and non-eMINTS classrooms, nor the differences between eMINTS students and the statewide average MAP score are statistically significant. The difference between eMINTS and non-eMINTS students is 1.94 points while the difference between eMINTS students and the statewide average is 2.28 points.

¹ These plots, called “bi-plots” show the entire distribution of MAP scores for each group. The mean value is represented by the large dot, the width of the 95% confidence interval is represented by the straight line and extreme values are represented by the small dots beyond the lines. These plots represent mean differences and confidence intervals as recommended by the American Psychological Association (see Wilkinson, L. 1999. *Statistical Methods in Psychology Journals: Guidelines and Explanations*. *American Psychologist* August 1999, Vol. 54, No. 8, 594–604). See Smith, R.W., 1997. *Visual Hypothesis Testing with Confidence Intervals*. *Proceedings of the Twenty-Second Annual SAS® Users Group International Conference* for a discussion of the bi-plot program.

Figure 5
Total MAP Score Differences by eMINTS Enrollment: Communication Arts

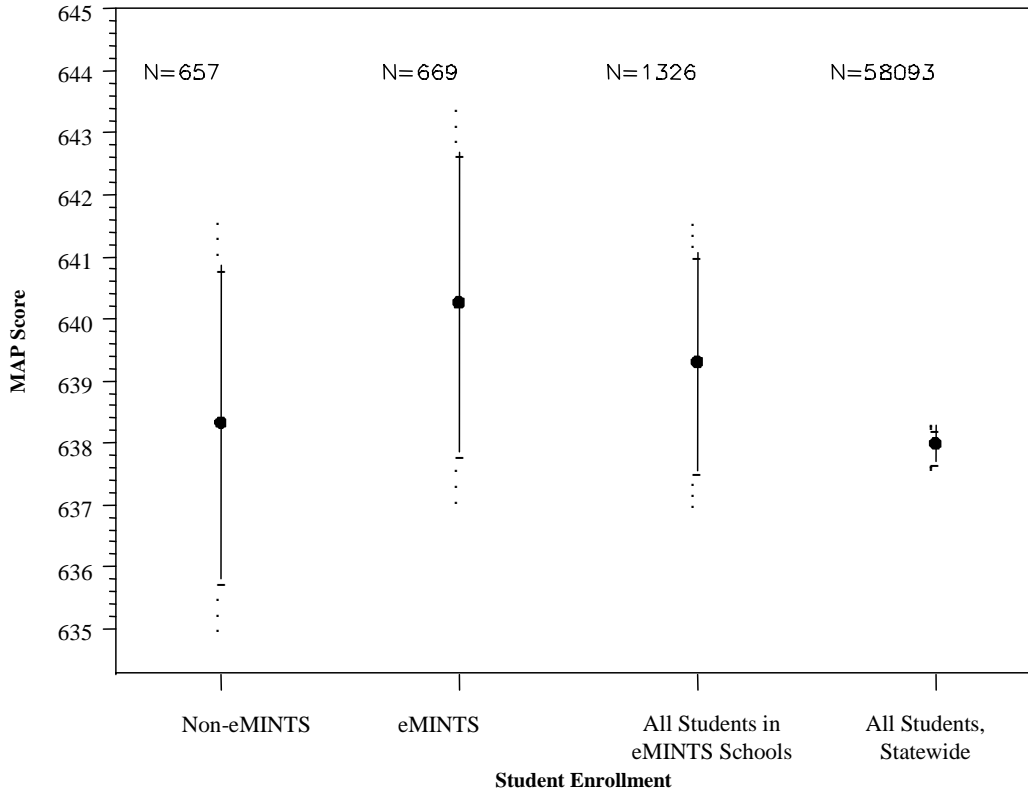
Total MAP Score by eMINTS Enrollment: Communication Arts



Student Enrollment	Number of Students	Mean	Standard Deviation	Lower 95% Confidence Limit for Mean	Upper 95% Confidence Limit for Mean
Non-eMINTS Students	659	638.70	32.86	636.18	641.21
eMINTS Students	671	644.63	30.39	642.33	646.94
All Students in eMINTS Schools	1330	641.69	31.77	639.98	643.40
All Students, Statewide	64897	640.48	33.04	640.22	640.73
Differences in Means			P-Value		
eMINTS vs. Non-eMINTS Students		5.94	0.0006		
eMINTS vs. All Students, Statewide		4.16			
Effect Size Estimates		Estimate	Variance		
Cohens D		0.188	0.003		
Hedges G		0.188	0.003		

Figure 6
Total MAP Score Differences by eMINTS Enrollment: Science

Total MAP Score by eMINTS Enrollment: Science



Student Enrollment	Number of Students	Mean	Standard Deviation	Lower 95% Confidence Limit for Mean	Upper 95% Confidence Limit for Mean
Non-eMINTS Students	657	638.33	33.01	635.80	640.86
eMINTS Students	669	640.27	31.92	637.84	642.69
All Students in eMINTS Schools	1326	639.31	32.46	637.56	641.06
All Students, Statewide	58093	637.99	34.56	637.71	638.27

	Mean Difference	P-Value
<u>Differences in Means</u>		
eMINTS vs. Non-eMINTS Students	1.94	0.2778
eMINTS vs. All Students, Statewide	2.28	

	Estimate	Variance
<u>Effect Size Estimates</u>		
Cohens D	0.060	0.003
Hedges G	0.060	0.003

Total MAP Scores by eMINTS Enrollment: Mathematics

Figure 7 presents the results for the MAP Mathematics test. Students enrolled in eMINTS classrooms scored an average of 8.45 points higher than students enrolled in non-eMINTS classrooms. This difference is statistically significant, as seen in the plot. The difference between eMINTS and non-eMINTS classrooms accounts for nearly twenty-five percent of the variance in MAP scores.

The difference between the average MAP score for students in eMINTS classrooms is 5.00 points higher than the statewide average.

Total MAP Scores by eMINTS Enrollment: Social Studies

Figure 8 presents the results for the MAP Social Studies test. Students enrolled in eMINTS classrooms scored an average of 4.95 points higher than students enrolled in non-eMINTS classrooms. This difference is statistically significant, as seen in the plot. The difference between eMINTS and non-eMINTS classrooms accounts for 18.1 percent of the variance in MAP scores.

The difference between the average MAP score for students in eMINTS classrooms is 3.76 points higher than the statewide average.

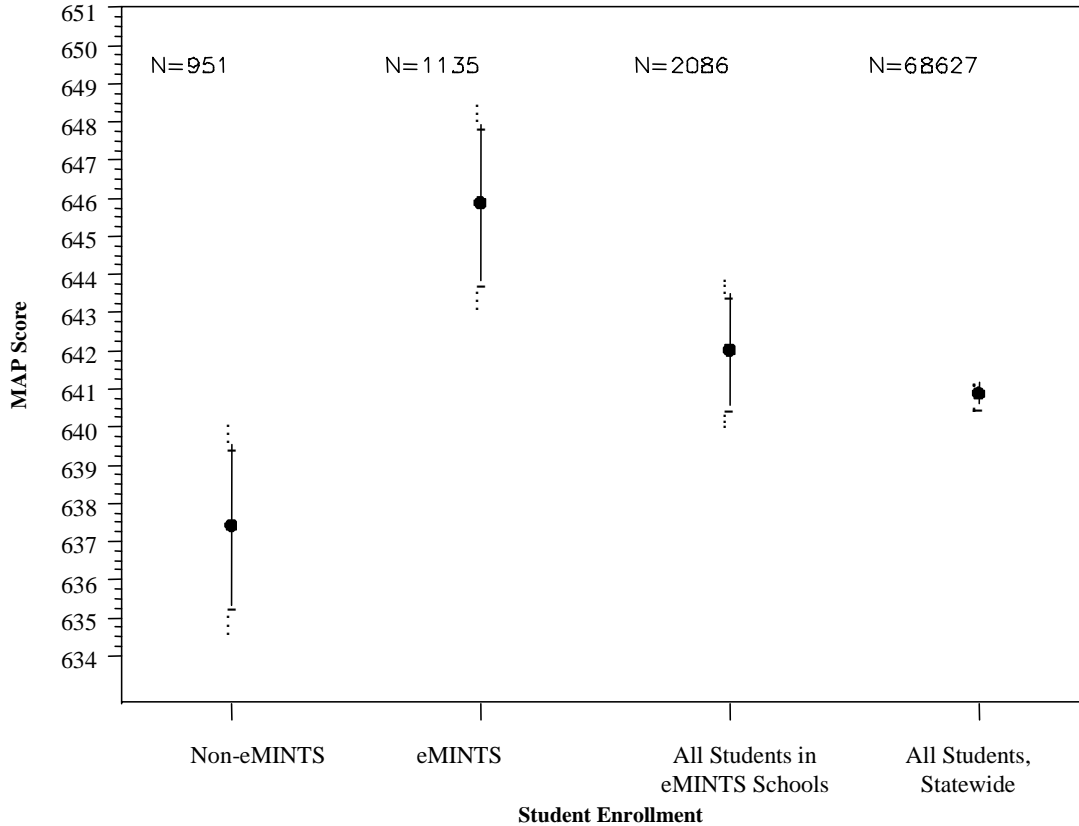
Summary

The results for third grade students are characteristic of the inconsistent differences seen in the previous MAP analyses. In the analysis of the FY00 eMINTS cohort there were statistically significant differences on both the Communication Arts and Science tests, while there were no significant differences on either third grade test in FY01. In FY02, there are statistically significant differences in the Communication Arts test only. With the available data it is not possible to explain the variation in the pattern among third grade tests. This may be due to several factors from the curriculum choices made by teachers to the developmental readiness of students to engage in inquiry-based projects.

The results for the fourth grade are characteristic of the consistent differences seen with past analyses. In each year, fourth grade eMINTS students have had a higher average score than non-eMINTS students. Also, eMINTS students have consistently scored higher than the statewide average.

Figure 7
Total MAP Score Differences by eMINTS Enrollment: Mathematics

Total MAP Score by eMINTS Enrollment: Mathematics



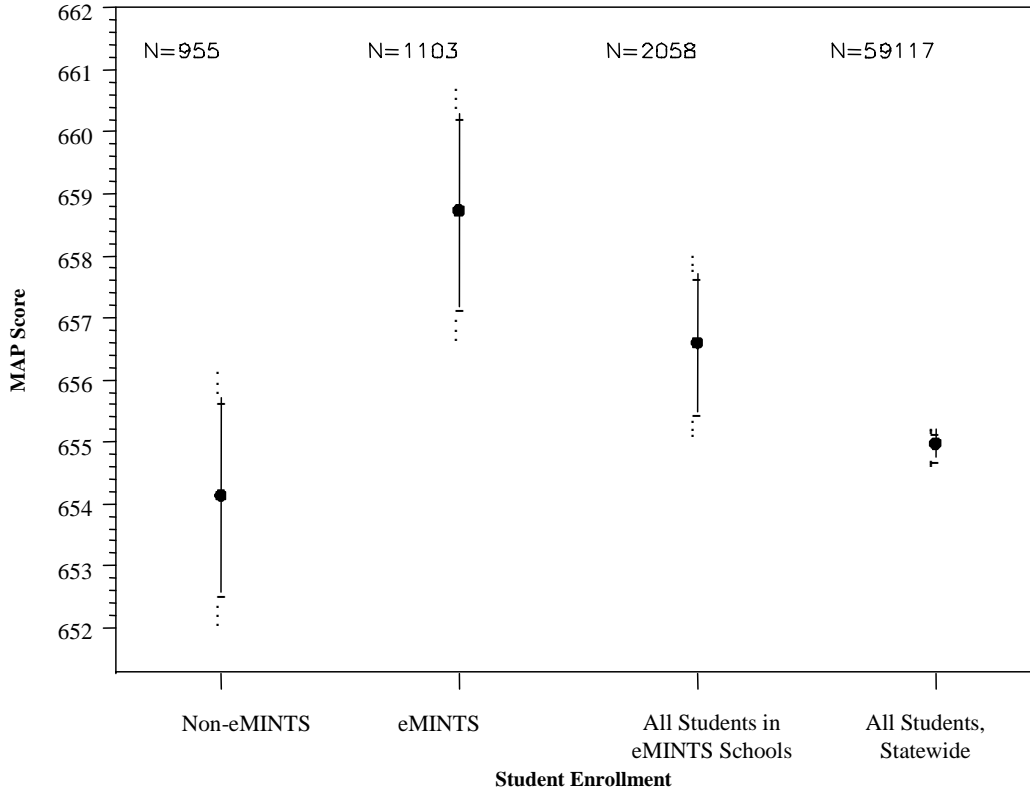
Student Enrollment	Number of Students	Mean	Standard Deviation	Lower 95% Confidence Limit for Mean	Upper 95% Confidence Limit for Mean
Non-eMINTS Students	951	637.43	33.07	635.33	639.54
eMINTS Students	1135	645.89	35.21	643.84	647.94
All Students in eMINTS Schools	2086	642.03	34.50	640.55	643.51
All Students, Statewide	68627	640.89	36.89	640.61	641.16

	Mean Difference	P-Value
<u>Differences in Means</u>		
eMINTS vs. Non-eMINTS Students	8.45	<0.0001
eMINTS vs. All Students, Statewide	5.00	

<u>Effect Size Estimates</u>	Estimate	Variance
Cohens D	0.248	0.002
Hedges G	0.248	0.002

Figure 8
Total MAP Score Differences by eMINTS Enrollment: Social Studies

Total MAP Score by eMINTS Enrollment: Social Studies



Student Enrollment	Number of Students	Mean	Standard Deviation	Lower 95% Confidence Limit for Mean	Upper 95% Confidence Limit for Mean
Non-eMINTS Students	955	654.14	24.60	652.58	655.70
eMINTS Students	1103	658.74	26.27	657.18	660.29
All Students in eMINTS Schools	2058	656.60	25.61	655.50	657.71
All Students, Statewide	59117	654.98	28.20	654.75	655.20

<u>Differences in Means</u>		P-Value
eMINTS vs. Non-eMINTS Students	4.59	<0.0001
eMINTS vs. All Students, Statewide	3.76	

<u>Effect Size Estimates</u>		
	Estimate	Variance
Cohens D	0.181	0.002
Hedges G	0.181	0.002

MAP Scores for Students in Special Statuses: Low Income and Special Education Students

The figures above show that, on average, students enrolled in eMINTS classrooms scored significantly higher on three of the 2003 MAP tests: Communication Arts, Mathematics and Social Studies. This section considers the role of eMINTS enrollment on student performance for low income students (as measured by eligibility for the federal Free and Reduced Lunch program) and those students identified as receiving special education services (as indicated by whether a student has an Individual Education Plan or IEP). The analysis considers the mean differences found for these student statuses and by whether they were enrolled in an eMINTS classroom during the 2002-2003 school year and then estimates the size of the interaction between student status and eMINTS enrollment using a two-level HLM model.

Distribution of Students in Special Statuses

The percentage distribution of students in these two statuses is shown in Tables 2 and 3. Table 2 presents the percentage distribution of low income students and special education students by their eMINTS enrollment for the Communication Arts and Science tests while Table 3 presents the same information for the Mathematics and Social Studies tests. There are virtually no differences in the percentage distribution of low income and special education students in eMINTS classrooms and those in non-eMINTS classrooms. This suggests that, at the program level, students in these two statuses are not overrepresented or underrepresented in the eMINTS classrooms.

The next sections look at the MAP score differences attributable to eMINTS enrollments for students in these two statuses on each test.

MAP Scores by eMINTS Enrollment: Low Income Students

Tables 4 and 5 present mean differences on the MAP tests by eMINTS enrollment for students identified as eligible for the Free and Reduced Program. Table 4 presents results for the 3rd grade tests, Communication Arts and Science. Table 5 presents results for the 4th grade tests, Mathematics and Social Studies.

Table 2
FRL Eligible and Special Education Students by eMINTS Enrollment,
3rd Grade Tests
(in Percent)

	Non-eMINTS Students	eMINTS Students	All Students	Number of Students
<i>Communication Arts</i>				
<u>FRL Eligible Students</u>				
No	46.1	48.6	47.4	630
Yes	53.9	51.4	52.6	700
All Students	100.0	100.0	100.0	1330
<u>Special Education Students</u>				
No	86.9	86.9	86.9	1156
Yes	13.1	13.1	13.1	174
All Students	100.0	100.0	100.0	1330
<i>Science</i>				
<u>FRL Eligible Students</u>				
No	45.4	48.7	47.1	624
Yes	54.6	51.3	52.9	702
All Students	100.0	100.0	100.0	1326
<u>Special Education Students</u>				
No	86.5	86.8	86.7	1149
Yes	13.5	13.2	13.3	177
All Students	100.0	100.0	100.0	1326

Communication Arts and Science

Table 4 shows that low income students enrolled in eMINTS classrooms scored significantly higher than low income students not enrolled in eMINTS classrooms on the Communication Arts test, but not on the Science test. On average, low income students in an eMINTS classroom scored 6.93 points higher than low-income students not enrolled in an eMINTS classroom. Among low income students this difference in classroom enrollments accounted for nearly twenty-one percent of the variance in the Communication Arts MAP score.

In contrast, there were no significant differences in the scores on the Science test attributable to eMINTS enrollment. Nevertheless, low income students enrolled in eMINTS classrooms scored an average of 3.44 points higher than low income students enrolled in non-eMINTS classrooms.

Table 3
FRL Eligible and Special Education Students by eMINTS Enrollment,
4th Grade Tests
(in Percent)

	Non-eMINTS Students	eMINTS Students	All Students	Number of Students
<i>Mathematics</i>				
<u>FRL Eligible Students</u>				
No	52.1	52.0	52.0	1085
Yes	47.9	48.0	48.0	1001
All Students	100.0	100.0	100.0	2086
<u>Special Education Students</u>				
No	86.6	85.8	86.2	1798
Yes	13.4	14.2	13.8	288
All Students	100.0	100.0	100.0	2086
<i>Social Studies</i>				
<u>FRL Eligible Students</u>				
No	51.9	52.6	52.3	1076
Yes	48.1	47.4	47.7	982
All Students	100.0	100.0	100.0	2058
<u>Special Education Students</u>				
No	86.8	86.1	86.4	1779
Yes	13.2	13.9	13.6	279
All Students	100.0	100.0	100.0	2058

Mathematics and Social Studies

Table 5 shows significant differences by eMINTS enrollment on both the Mathematics and the Social Studies tests. Among low income students, those enrolled in eMINTS classrooms scored an average of 6.13 points higher on the Mathematics test and 4.71 points higher on the Social Studies test. eMINTS enrollment accounted for 18.7 percent of the variance on the Mathematics test and 19.7 on the Social Studies test.

Table 4
Mean MAP Score Values by eMINTS Enrollment
Free and Reduced Lunch Eligible Students, 3rd Grade Tests

Student Enrollment	Number of Students	Mean	Standard Deviation	Lower 95% Confidence Limit for Mean	Upper 95% Confidence Limit for Mean
<i>Communication Arts</i>					
Non-eMINTS Students	355	633.23	34.71	629.61	636.86
eMINTS Students	345	640.16	31.67	636.81	643.52
All FRL Eligible Students	700	636.65	33.40	634.17	639.13
<u>Differences in Means</u>					
eMINTS vs. Non-eMINTS Students		6.93	P-Value 0.0060		
<u>Effect Size Estimates</u>					
	Estimate	Variance			
Cohens D	0.209	0.006			
Hedges G	0.209	0.006			
<i>Science</i>					
Non-eMINTS Students	359	632.51	32.26	629.16	635.86
eMINTS Students	343	635.95	33.49	632.39	639.51
All FRL Eligible Students	702	634.19	32.89	631.75	636.63
<u>Differences in Means</u>					
eMINTS vs. Non-eMINTS Students		3.44	P-Value 0.1657		
<u>Effect Size Estimates</u>					
	Estimate	Variance			
Cohens D	0.105	0.006			
Hedges G	0.105	0.006			

eMINTS Differences in Context: Free and Reduced Lunch Eligibility

Tables 4 and 5 show that, on average, low income students enrolled in eMINTS classrooms scored higher than low income students enrolled in other classrooms. This difference is statistically significant on every test except Science.

These tables do not place these differences for Free and Reduced Lunch eligible students in the context of the overall MAP score differences observed in eMINTS schools (see Figures 4 through 7). One question that arises is whether the differences seen among students eligible for the Free and Reduced Lunch program are smaller than the overall differences seen in eMINTS schools. In other words, does eMINTS enrollment help close the performance gap between Free and Reduced Lunch eligible students and other students?

Table 5
Mean MAP Score Values by eMINTS Enrollment
Free and Reduced Lunch Eligible Students, 4th Grade Tests

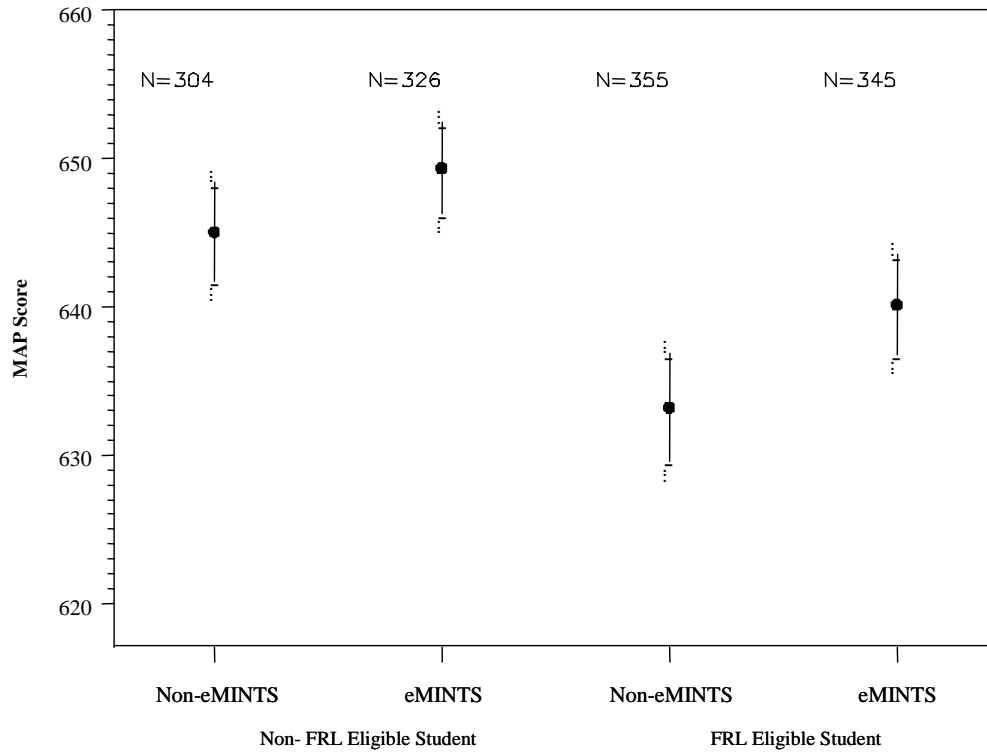
Student Enrollment	Number of Students	Mean	Standard Deviation	Lower 95% Confidence Limit for Mean	Upper 95% Confidence Limit for Mean
<i>Mathematics</i>					
Non-eMINTS Students	456	631.37	32.21	628.40	634.33
eMINTS Students	545	637.50	33.59	634.67	640.32
All FRL Eligible Students	1001	634.70	33.09	632.65	636.76
<u>Differences in Means</u>			P-Value		
eMINTS vs. Non-eMINTS Students		6.13	0.0035		
<u>Effect Size Estimates</u>		Estimate	Variance		
Cohens D		0.187	0.004		
Hedges G		0.187	0.004		
<i>Social Studies</i>					
Non-eMINTS Students	459	648.00	22.90	645.90	650.10
eMINTS Students	523	652.71	25.10	650.56	654.87
All FRL Eligible Students	982	650.51	24.20	649.00	652.03
<u>Differences in Means</u>			P-Value		
eMINTS vs. Non-eMINTS Students		4.71	0.0022		
<u>Effect Size Estimates</u>		Estimate	Variance		
Cohens D		0.197	0.004		
Hedges G		0.197	0.004		

This question is addressed in Figures 8 through 10. These figures present the results of a two-level Hierarchical Linear Model (HLM) regressing the student-level MAP score on student FRL-eligibility and eMINTS classroom enrollment. Figure 8 presents results for the Communication Arts test, Figure 9 presents results for the Mathematics test and Figure 10 presents results for the Social Studies test. An analysis of the Science test is not presented because no significant differences were found for either all students or for low income students.

These models present the main effects for student FRL eligibility and for eMINTS classroom enrollment. Where appropriate, the models also include an interaction term assessing the performance difference for low income students enrolled in eMINTS classrooms.

Figure 9
MAP Communication Arts Model: eMINTS Enrollment and Student FRL Eligibility
2-level HLM Model

MAP Communication Arts by FRL Eligibility and eMINTS Enrollment



	Classroom Type and Student Status							
	<i>Model 1</i>				<i>Model 2</i>			
	Coefficient	Standard Error	Df	P-Value	Coefficient	Standard Error	Df	P-Value
Intercept	642.24	1.5111	72	<0.0001	645.46	2.33	71	<0.0001
FRL Eligible Student								
<i>No</i>								
Yes					-11.58	1.74	1256	<0.0001
Student Enrolled in an eMINTS Classroom								
<i>No</i>								
Yes					5.87	3.04	1256	0.0539
Model P-Value	<0.0001				<0.0001			
Residual Variance	898.91				866.62			
% Improvement					3.59			
Number of Students	1330				1330			
Number of Classrooms	73				73			

Each of the models in Figures 8 through 10 is a “random intercept” model. These models assume that MAP scores vary between different classrooms (as represented in the value of the intercept term in each model), but the effect associated with being an eMINTS classroom is the same across all classrooms. This means that classroom performance differs randomly among classrooms and teachers, i.e., due to any number of factors, but teacher participation in the eMINTS program impacts student performance to the same degree.

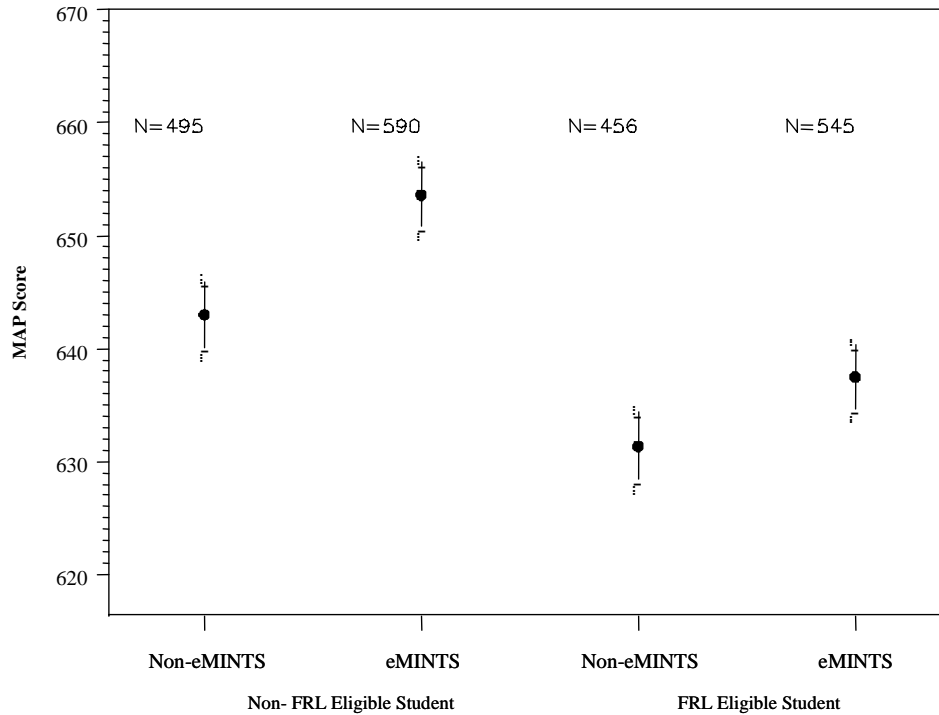
Figure 8 presents the model for the Communication Arts test. In this model, there is no statistically significant interaction term, which suggests that low income students do not receive a differential performance effect from being enrolled in an eMINTS classroom. According to this model, on average, low income students scored 11.58 points lower than other students, controlling for the effect of eMINTS enrollment. By the same token, students in eMINTS classrooms scored an average of 5.87 points higher than other students, controlling for the effect of low income students. The lack of a significant interaction term suggests that all students enrolled in eMINTS classrooms, regardless of their FRL eligibility, score approximately 6 points higher on the MAP than students enrolled in other classrooms.

The inclusion of student FRL eligibility and eMINTS classroom enrollment improves the overall fit of Model 2 by 3.59 percent over the unconditional model (Model 1).

Figure 9 shows the plot and model for the Mathematics test. Here there is a significant interaction between student FRL eligibility and eMINTS classroom enrollment, suggesting that eMINTS enrollment differentially impacts the performance low income students on the MAP Mathematics test. In this model, the effects of student FRL eligibility and eMINTS classroom enrollment are about opposite one another, -11.44 and 11.59 respectively. The interaction term is negative, indicating that students who are both eligible for the Free and Reduced Lunch program and enrolled in an eMINTS classroom scored lower than non-low income students not enrolled in an eMINTS classroom. However, the magnitude of this effect, 6.22 points, is 45 percent less than the effect for all low income students.

Figure 10
MAP Mathematics Model: eMINTS Enrollment and Student FRL Eligibility
2-level HLM Model

MAP Mathematics by FRL Eligibility and eMINTS Enrollment



	Model 1				Model 2			
	Coefficient	Standard Error	Df	P-Value	Coefficient	Standard Error	Df	P-Value
Intercept	642.12	1.24	106	<0.0001	642.99	2.05	105	<0.0001
FRL Eligible Student								
No								
Yes					-11.44	2.20	1977	<0.0001
Student Enrolled in an eMINTS Classroom								
No								
Yes					11.59	2.79	1977	<0.0001
Interaction					-6.22	2.99	1977	0.0134
Model P-Value	<0.0001				<0.0001			
Residual Variance	1085.84				1032.41			
% Improvement					4.92			
Number of Students	2086				2086			
Number of Classrooms	107				107			

This suggests that eMINTS enrollment had a significant impact on the general effect of student poverty on MAP Mathematics scores. While eMINTS enrollment did not eliminate this difference, it did reduce the size of the difference by an average of 6 points. For example, using the predicted values from the model, one would expect a “regular” student, i.e., one not in poverty or enrolled in an eMINTS classroom, to score 643 on the MAP Mathematics test. One would expect a student in poverty and not enrolled in an eMINTS classroom to score about eleven points lower, approximately 632 points. By the same token, one would expect a student in poverty and enrolled in an eMINTS classroom to score only six points lower, approximately 637 points.

Figure 10 presents the results from the Social Studies test. As with the Communication Arts test, the interaction term is not significant, indicating that there is no differential effect for low income students enrolled in eMINTS classrooms. On average, low income students scored 12.91 points lower than other students. Students enrolled in eMINTS classrooms scored 4.69 points higher than other students.

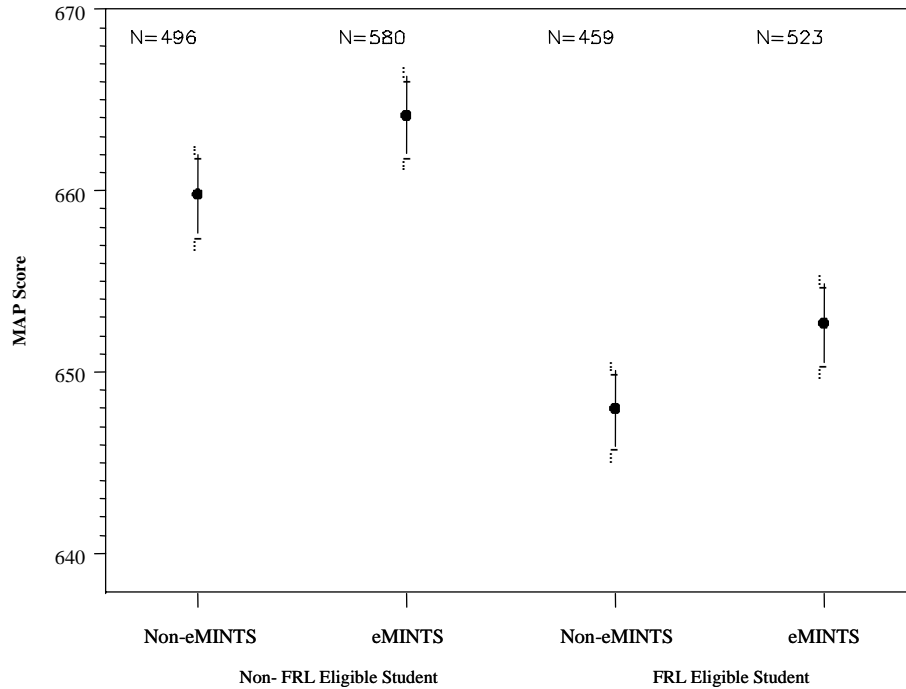
Summary

This brief analysis of the MAP scores of low income students suggests that those students who are enrolled in eMINTS classrooms score higher than students in non-eMINTS classrooms. Despite this, there is little evidence to suggest that low income students are experiencing a performance benefit associated with eMINTS enrollment. On the MAP Mathematics test there is evidence of a significant interaction between student FRL eligibility and eMINTS enrollment. On the other tests, Communication Arts and Social Studies, the interaction term was not significant.

While eMINTS enrollment does benefit student test performance in the FY02 schools, there is insufficient evidence here for the claim that school participation in the eMINTS program will help to “narrow the gap” between low income and other students.

Figure 11
MAP Social Studies Model: eMINTS Enrollment and Student FRL Eligibility
2-level HLM Model

MAP Social Studies by FRL Eligibility and eMINTS Enrollment



	Classroom Type and Student Status							
	<i>Model 1</i>				<i>Model 2</i>			
	Coefficient	Standard Error	Df	P-Value	Coefficient	Standard Error	Df	P-Value
Intercept	656.58	0.9752	104	<0.0001	660.28	1.54	103	<0.0001
FRL Eligible Student								
<i>No</i>								
<i>Yes</i>					-12.91	1.10	1952	<0.0001
Student Enrolled in an eMINTS Classroom								
<i>No</i>								
<i>Yes</i>					4.69	1.97	1952	0.0173
Model P-Value	<0.0001				<0.0001			
Residual Variance	588.59				548.67			
% Improvement					6.78			
Number of Students	2058				2058			
Number of Classrooms	105				105			

Table 6
Mean MAP Score Values by eMINTS Enrollment
Special Education Students, 3rd Grade Tests

Student Enrollment	Number of Students	Mean	Standard Deviation	Lower 95% Confidence Limit for Mean	Upper 95% Confidence Limit for Mean
<i>Communication Arts</i>					
Non-eMINTS Students	86	615.24	40.24	606.62	623.87
eMINTS Students	88	626.13	27.25	620.35	631.90
All IEP Students	174	620.75	34.62	615.57	625.93
<u>Differences in Means</u>			P-Value		
eMINTS vs. Non-eMINTS Students		10.88	0.0389		
<u>Effect Size Estimates</u>		Estimate	Variance		
Cohens D		0.318	0.024		
Hedges G		0.316	0.023		
<i>Science</i>					
Non-eMINTS Students	89	624.06	39.65	615.70	632.41
eMINTS Students	88	627.14	31.82	620.40	633.88
All IEP Students	177	625.59	35.90	620.26	630.91
<u>Differences in Means</u>			P-Value		
eMINTS vs. Non-eMINTS Students		3.08	0.5692		
<u>Effect Size Estimates</u>		Estimate	Variance		
Cohens D		0.086	0.023		
Hedges G		0.086	0.023		

MAP Scores by eMINTS Enrollment: Special Education Students

The role of student enrollment in an eMINTS classroom on the performance of students who are receiving special education services (as defined by having an active Individual Education Plan, or IEP) differs substantially from the impact of eMINTS enrollment on the performance of low income students.

Tables 6 and 7 present the mean MAP scores by eMINTS enrollment for special education students. There are statistically significant differences for the Communication Arts and Mathematics tests. Both of these differences are large, 10.88 points on the Communication Arts test and 15.11 points on the Mathematics test. On the Communication Arts test the eMINTS-non-eMINTS difference accounts for 32 percent of the total variation in the MAP scores of special education students. The effect size on the Mathematics test is 39 percent.

Table 7
Mean MAP Score Values by eMINTS Enrollment
Special Education Students, 4th Grade Tests

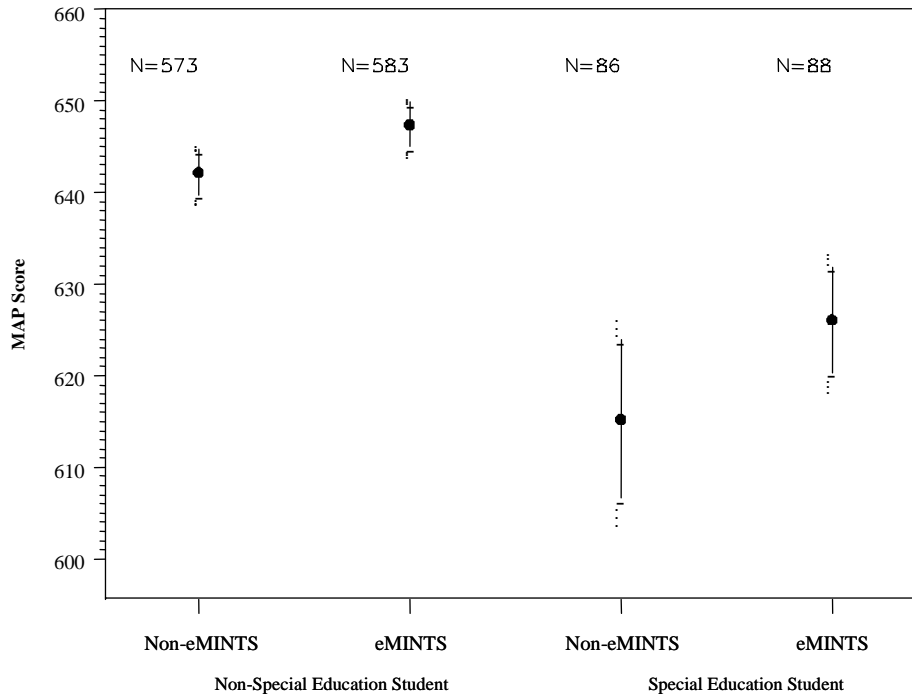
Student Enrollment	Number of Students	Mean	Standard Deviation	Lower 95% Confidence Limit for Mean	Upper 95% Confidence Limit for Mean
<i>Mathematics</i>					
Non-eMINTS Students	127	610.68	38.72	603.88	617.48
eMINTS Students	161	625.78	38.87	619.73	631.83
All IEP Students	288	619.12	39.46	614.55	623.70
<u>Differences in Means</u>			<u>P-Value</u>		
eMINTS vs. Non-eMINTS Students		15.11	0.0012		
<u>Effect Size Estimates</u>		<u>Estimate</u>	<u>Variance</u>		
Cohens D		0.391	0.015		
Hedges G		0.390	0.014		
<i>Social Studies</i>					
Non-eMINTS Students	126	639.90	25.74	635.36	644.43
eMINTS Students	153	645.12	27.38	640.74	649.49
All IEP Students	279	642.76	26.73	639.61	645.91
<u>Differences in Means</u>			<u>P-Value</u>		
eMINTS vs. Non-eMINTS Students		5.22	0.1046		
<u>Effect Size Estimates</u>		<u>Estimate</u>	<u>Variance</u>		
Cohens D		0.198	0.015		
Hedges G		0.197	0.015		

Special education students in eMINTS classrooms also scored higher than special education students in other classrooms on the Science and Social Studies tests, but these differences are not statistically significant. On the Science test, this difference is 3.08 points, while on the Social Studies test the difference is 5.22 points.

Figures 12 and 13 present 2-level HLM models for student special education status and eMINTS enrollment for the Communication Arts and Mathematics tests. As with the previous models testing the effects for low income students, these models are random intercept models that allow the intercept to vary between classes but assume the effects for special education status and eMINTS enrollment are the same in all classrooms.

Figure 12
MAP Communication Arts Model: eMINTS Enrollment and
Student Special Education Status, 2-level HLM Model

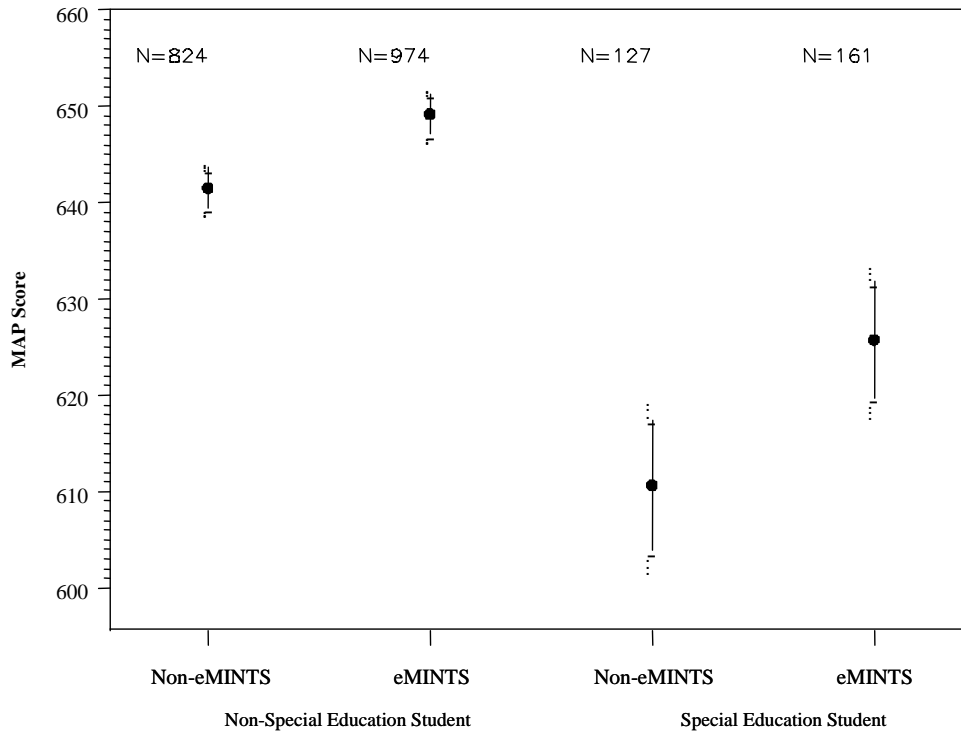
MAP Communication Arts by IEP Students Status and eMINTS Enrollment



	Classroom Type and Student Status							
	Model 1				Model 2			
	Coefficient	Standard Error	Df	P-Value	Coefficient	Standard Error	Df	P-Value
Intercept	642.24	1.5111	72	<0.0001	643.27	2.19	71	<0.0001
IEP Student								
No								
Yes					-29.92	3.41	1255	<0.0001
Student Enrolled in an eMINTS Classroom								
No								
Yes					4.71	3.11	1255	0.1300
Interaction					9.29	4.81	1255	0.0535
Model P-Value	<0.0001				<0.0001			
Residual Variance	898.91				823.02			
% Improvement					8.44			
Number of Students	1330				1114			
Number of Classrooms	73				61			

Figure 13
MAP Mathematics Model: eMINTS Enrollment and
Student Special Education Status, 2-level HLM Model

MAP Mathematics by IEP Student Status and eMINTS Enrollment



	Classroom Type and Student Status							
	<i>Model 1</i>				<i>Model 2</i>			
	Coefficient	Standard Error	Df	P-Value	Coefficient	Standard Error	Df	P-Value
Intercept	642.12	1.24	106	<0.0001	641.84	1.82	105	<0.0001
IEP Student								
<i>No</i>								
Yes					-32.12	3.08	1977	<0.0001
Student Enrolled in an eMINTS Classroom								
<i>No</i>								
Yes					7.64	2.46	1977	0.0020
Interaction					7.98	4.13	1977	0.0536
Model P-Value	<0.0001				<0.0001			
Residual Variance	1085.84				992.55			
% Improvement					8.59			
Number of Students	2086				2086			
Number of Classrooms	107				107			

Figure 12 presents the models for Communication Arts. The interaction between special education status and eMINTS enrollment is significant and positive, suggesting that special education students in eMINTS classrooms receive an additional benefit. However, this benefit does not compensate for the overall score deficit for students receiving special education services. Overall, special education students scored 29.92 points lower than other students. The main effect of eMINTS enrollment is 4.71 points. The interaction for special education students enrolled in eMINTS classrooms is an additional 9.29 points. This suggests that, on average, a special education student enrolled in an eMINTS classroom scored only about 16 points lower than the “average” student. This represents a 53 percent improvement over the mean Communication Arts score for special education students.

A similar picture is seen on the Mathematics test (see Figure 13). Here, the impact of receiving special education services and being enrolled in an eMINTS classroom is 15.62 points. Overall, the combined influence of the main effect of enrollment in an eMINTS classroom and the interaction reduced the score deficit for special education students by about half, from 32.12 points lower than the intercept to 16.50 points lower. This represents a 51 percent improvement over the mean Mathematics score for special education students.

These results suggest that, in the FY02 cohort of schools, enrollment in an eMINTS classroom helps cut the score deficit associated with special education in half in the two most critical subject areas of the elementary curriculum, communication arts and mathematics. Unfortunately, it is not possible to specify these effects further. There too few cases to disaggregate these findings to specific types of IEPs. In addition, it is not possible to verify the types of IEPs for individual students from the information available on the MAP.

MAP Scores for Students in Title I Schools

Past analyses of MAP score differences have focused on an apparent interaction between enrollment in an eMINTS classroom and receipt of Title I services. In most cases this interaction was positive, indicating that Title I students in eMINTS classrooms scored higher than Title I students in other classrooms. However, the past analysis ignored some important administrative differences in the Title I program.

Title I funds are given to schools to support one of two programs. “Targeted Assistance” programs provide instructional support and tutoring to individual students, typically by supporting a Title I teacher or aide. “Schoolwide” programs are supposed to support all students in the school by engaging the faculty in a comprehensive school improvement program.

Table 8
Distribution of Schools by Title I Program Type, FY02 eMINTS Cohort
(in Percent)

	Number of Schools	Percent
Non Title I School	1	2.6
Targeted Assistance Title I School	25	64.1
Schoolwide Title I School	13	33.3
All Schools	39	100.0

These programs are both represented in the MAP student record by a single variable indicating that a student received Title I services. According to the *DESE MAP Test Coordinator’s Manual*² Schoolwide Title I schools are instructed to mark all students as receiving title I services regardless of whether they received any assistance from a Title I teacher. In Targeted Assistance Title I schools, only the students who actually received Title I assistance had this variable marked “yes.” Unfortunately, this policy does not reliably identify whether individual students in Schoolwide Title I schools received Title I assistance.

Because of this, the current analysis of the relationship of eMINTS classrooms in Title I schools begins by classifying schools by their Title I program status and considers student performance by classroom enrollment. The relatively low number of schools in the FY02 cohort (39) and the overall distribution of schools (see Table 8) prevent the estimation of a three-level HLM model that would place student performance within the classroom and school context.

Table 8 lists the number of schools in the FY02 eMINTS cohort by Title I program type. As seen here, almost two-thirds of the schools are Targeted Assistance Title I schools. Schoolwide Title I schools make up one-third of the schools. There was one non-Title I school in this cohort.

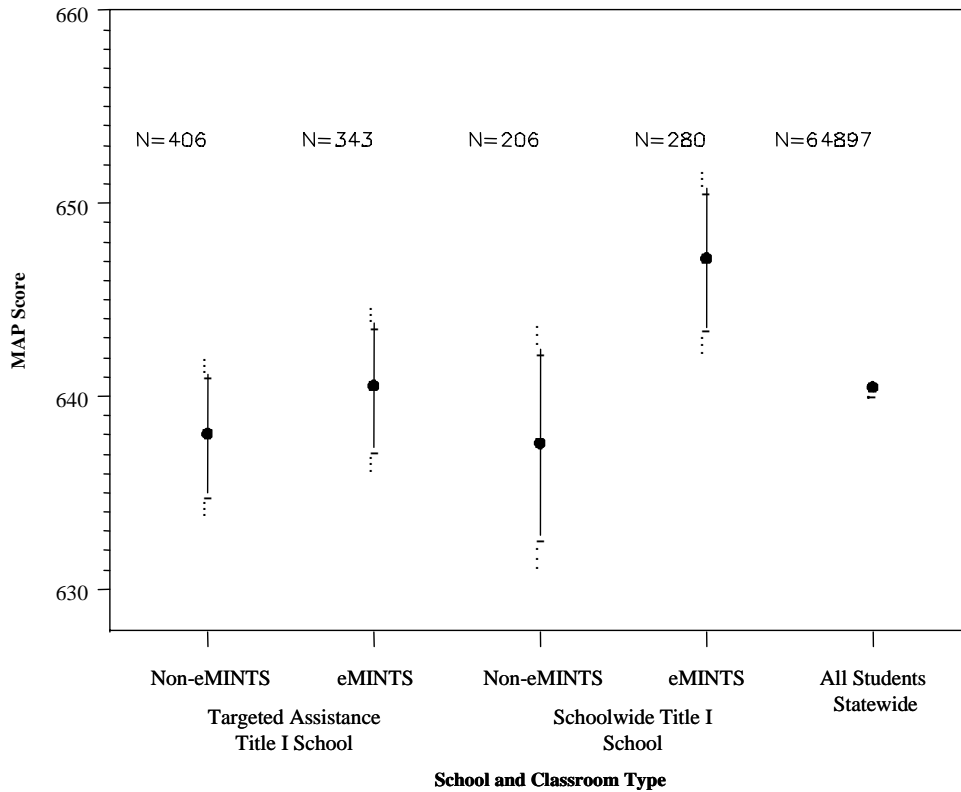
The results of the analysis of Title I schools is presented in Figures 14 through 17 and Tables 9 through 12. The figures present the bi-plots for each MAP test and the tables present the mean values, confidence intervals, test values and effect sizes for the eMINTS-non-eMINTS differences in each type of school. These results need to be considered in light of the frequencies in Table 8. In particular, the differences seen in the non-Title I school are problematic because of the relatively low number of students in this school and the lack of school-level variation. Consequently, the discussion below focuses on the differences between Targeted Assistance and Schoolwide Title I schools and differences in non-Title I schools are not discussed.

In this analysis comparisons are made against the statewide average MAP scores.

² See <http://dese.mo.gov/divimprove/assess/> for this document.

Figure 14
MAP Communication Arts Results by Title I School Type and eMINTS Enrollment

MAP Communication Arts by Title I School Type and eMINTS Enrollment



Communication Arts

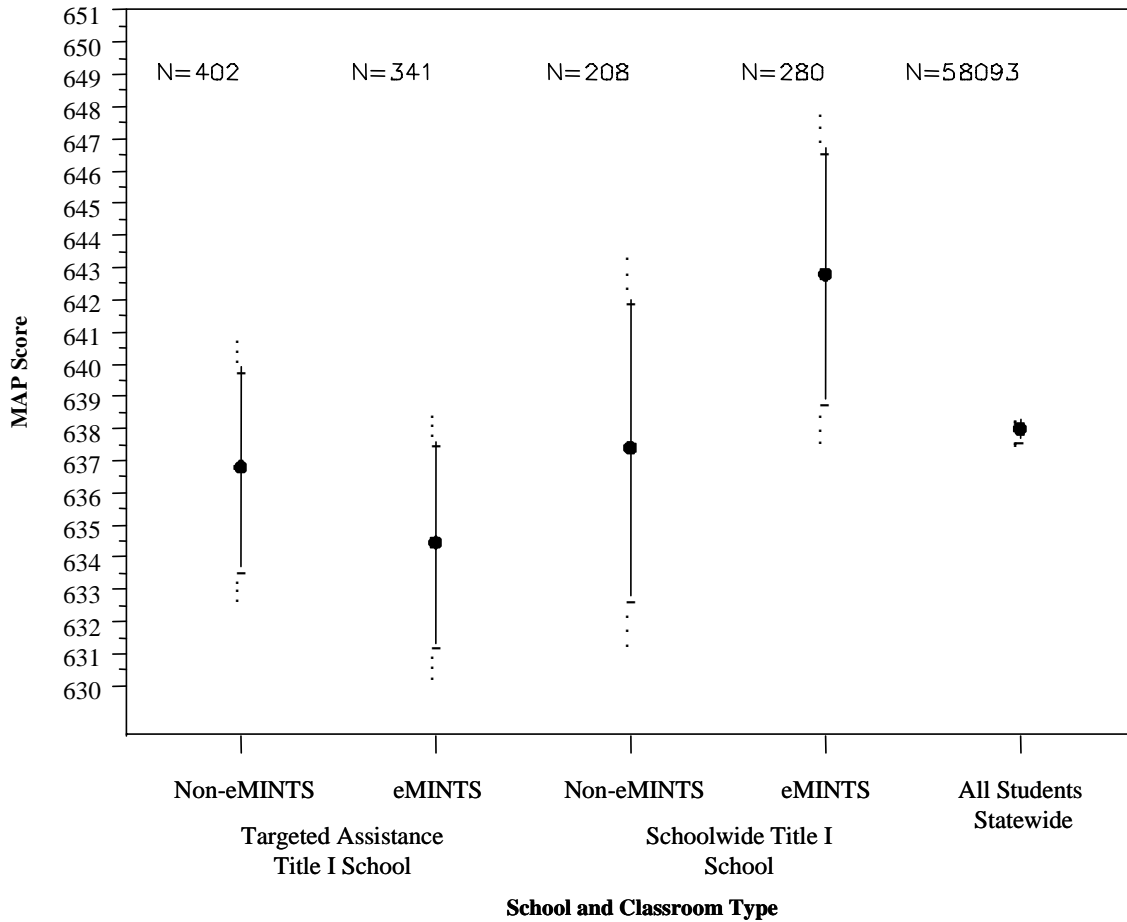
Figure 14 and Table 9 present results for the Communication Arts test. The eMINTS-non-eMINTS difference among Schoolwide Title I schools is pronounced. On average, eMINTS students scored 9.57 points higher than non-eMINTS students. In comparison, the difference for Targeted Assistance schools is 2.48 points. In the Schoolwide Title I schools, the eMINTS-non-eMINTS difference accounts for 29 percent of the variance in the Communication Arts score. The average score for eMINTS students in Schoolwide Title I schools is 6.68 points higher than the statewide average (see Figure 4).

Table 9
MAP Communication Arts Results by Title I School Type and eMINTS Enrollment
Mean Differences

Student Enrollment	Number of Students	Mean	Standard Deviation	Lower 95% Confidence Limit for Mean	Upper 95% Confidence Limit for Mean
<i>Targeted Assistance Title I Schools</i>					
Non-eMINTS Students	406	638.07	31.77	634.97	641.17
eMINTS Students	343	640.55	30.50	637.32	643.79
All Students in Targeted Assistance Title I Schools	749	639.21	31.20	636.97	641.44
<u>Differences in Means</u>			P-Value		
eMINTS vs. Non-eMINTS		2.48	0.2777		
<u>Effect Size Estimates</u>			Estimate	Variance	
Cohens D		0.080	0.005		
Hedges G		0.080	0.005		
<i>Schoolwide Title I Schools</i>					
Non-eMINTS Students	206	637.58	35.11	632.76	642.41
eMINTS Students	280	647.16	30.47	643.57	650.74
All Students in Schoolwide Title I Schools	486	643.10	32.83	640.17	646.02
<u>Differences in Means</u>			P-Value		
eMINTS vs. Non-eMINTS		9.57	0.0018		
<u>Effect Size Estimates</u>			Estimate	Variance	
Cohens D		0.289	0.009		
Hedges G		0.288	0.009		

Figure 15
MAP Science Results by Title I School Type and eMINTS Enrollment

MAP Science by Title I School Type and eMINTS Enrollment



Science

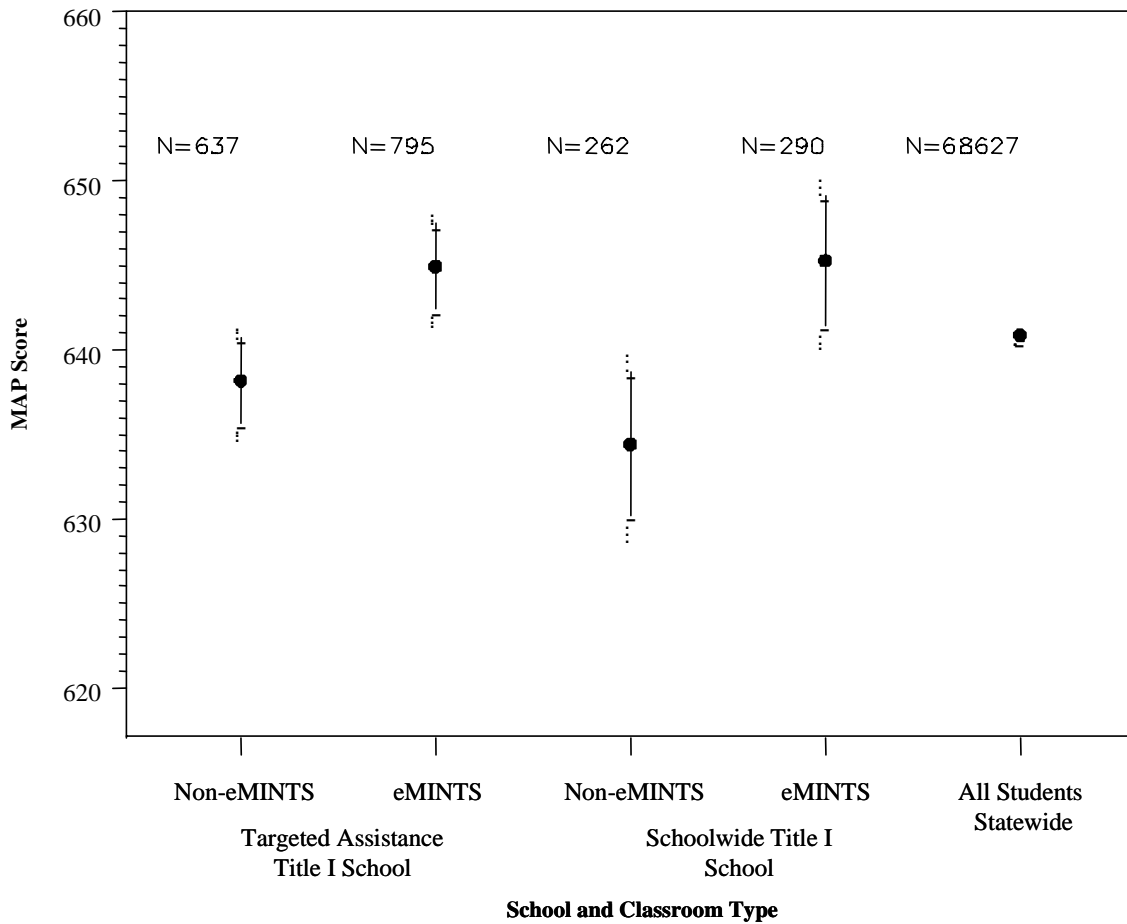
The results in Figure 15 and Table 10 do not show statistically significant differences among Title I schools on the MAP Science test. Among Targeted Assistance schools, students enrolled in eMINTS classrooms scored 2.34 points lower than other students. In Schoolwide Title I schools students enrolled in eMINTS classrooms scored 5.40 points higher than non-eMINTS students.

Table 10
MAP Science Results by Title I School Type and eMINTS Enrollment
Mean Differences

Student Enrollment	Number of Students	Mean	Standard Deviation	Lower 95% Confidence Limit for Mean	Upper 95% Confidence Limit for Mean
<i>Targeted Assistance Title I Schools</i>					
Non-eMINTS Students	402	636.81	31.73	633.69	639.92
eMINTS Students	341	634.46	29.43	631.33	637.60
All Students in Targeted Assistance Title I Schools	743	635.73	30.70	633.52	637.94
<u>Differences in Means</u>				P-Value	
eMINTS vs. Non-eMINTS		-2.34		0.3002	
<u>Effect Size Estimates</u>		Estimate	Variance		
Cohens D		0.077	0.005		
Hedges G		0.077	0.005		
<i>Schoolwide Title I Schools</i>					
Non-eMINTS Students	208	637.40	33.79	632.78	642.02
eMINTS Students	280	642.80	33.18	638.89	646.70
All Students in Schoolwide Title I Schools	488	640.50	33.51	637.52	643.48
<u>Differences in Means</u>				P-Value	
eMINTS vs. Non-eMINTS		5.40		0.0785	
<u>Effect Size Estimates</u>		Estimate	Variance		
Cohens D		0.161	0.008		
Hedges G		0.161	0.008		

Figure 16
MAP Mathematics Results by Title I School Type and eMINTS Enrollment

MAP Mathematics by Title I School Type and eMINTS Enrollment



Mathematics

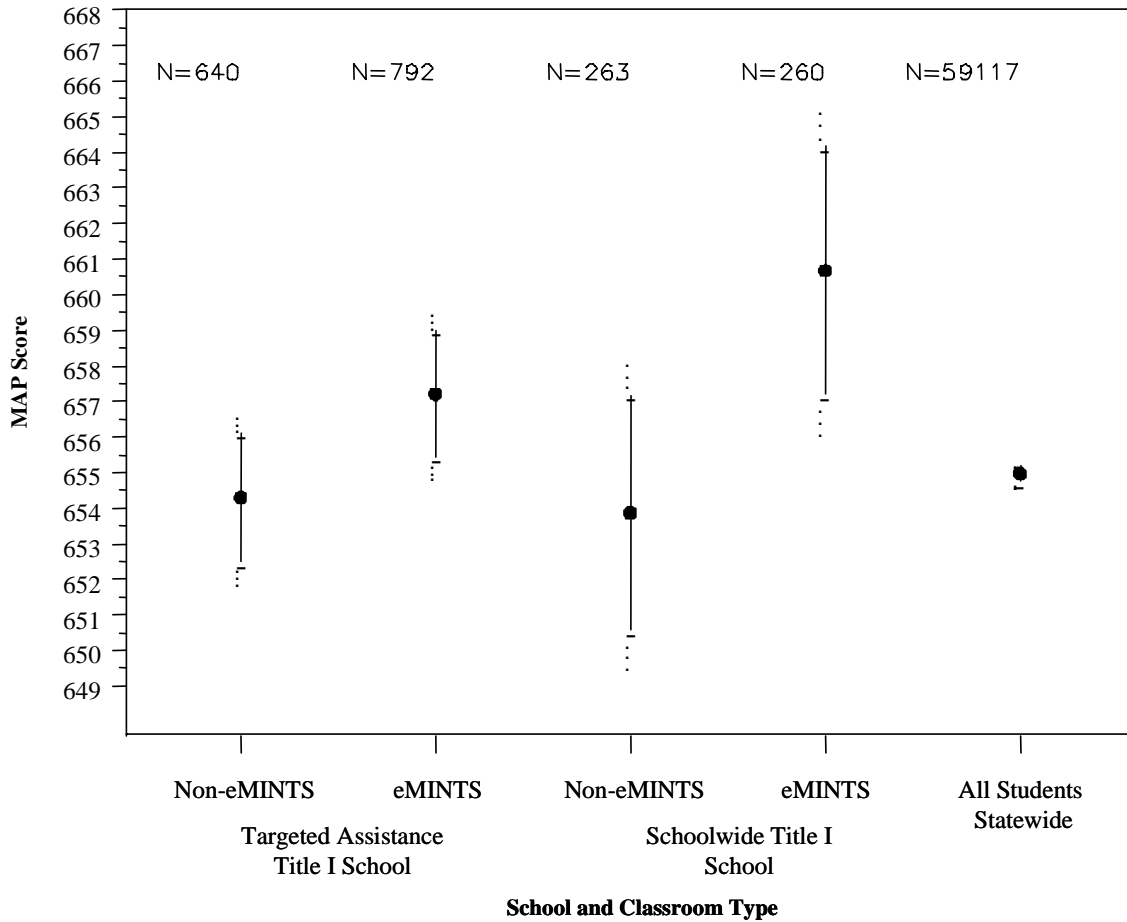
The mean differences on the Mathematics test are presented in Figure 16 and Table 11. There are statistically significant differences between students in eMINTS and non-eMINTS classrooms in both Targeted Assistance and Schoolwide Title I schools. However, the difference in Schoolwide Title I schools is 61 percent larger than the difference seen in Targeted Assistance schools. On this test the average scores for eMINTS students in both Targeted Assistance and Schoolwide Title I schools is about equal to the mean value for all students statewide (see Figure 6).

Table 11
MAP Mathematics Results by Title I School Type and eMINTS Enrollment
Mean Differences

Student Enrollment	Number of Students	Mean	Standard Deviation	Lower 95% Confidence Limit for Mean	Upper 95% Confidence Limit for Mean
<i>Targeted Assistance Title I Schools</i>					
Non-eMINTS Students	637	638.21	32.35	635.69	640.72
eMINTS Students	795	644.95	36.17	642.43	647.47
All Students in Targeted Assistance Title I Schools	1432	641.95	34.68	640.15	643.75
<u>Differences in Means</u>				P-Value	
eMINTS vs. Non-eMINTS			6.74	0.0002	
<u>Effect Size Estimates</u>		Estimate	Variance		
Cohens D		0.198	0.003		
Hedges G		0.198	0.003		
<i>Schoolwide Title I Schools</i>					
Non-eMINTS Students	262	634.44	34.74	630.21	638.67
eMINTS Students	290	645.30	33.18	641.46	649.14
All Students in Schoolwide Title I Schools	552	640.14	34.33	637.27	643.02
<u>Differences in Means</u>				P-Value	
eMINTS vs. Non-eMINTS			10.86	0.0002	
<u>Effect Size Estimates</u>		Estimate	Variance		
Cohens D		0.320	0.007		
Hedges G		0.319	0.007		

Figure 17
MAP Social Studies Results by Title I School Type and eMINTS Enrollment

MAP Social Studies by Title I School Type and eMINTS Enrollment



Social Studies

Figure 17 and Table 12 present the results for the Social Studies test. The eMINTS-non-eMINTS difference is statistically significant in both Targeted Assistance and Schoolwide Title I schools. In Targeted Assistance schools, students enrolled in eMINTS classrooms scored an average of 2.91 points higher than other students. In Schoolwide Title I schools, students enrolled in eMINTS classrooms scored an average of 6.81 points higher than non-eMINTS students. In these schools, the average MAP score for eMINTS students is 5.70 points higher than the statewide average.

Table 12
MAP Social Studies Results by Title I School Type and eMINTS Enrollment
Mean Differences

Student Enrollment	Number of Students	Mean	Standard Deviation	Lower 95% Confidence Limit for Mean	Upper 95% Confidence Limit for Mean
<i>Targeted Assistance Title I Schools</i>					
Non-eMINTS	640	654.30	23.24	652.50	656.10
eMINTS	792	657.21	25.50	655.44	658.99
All Students in Targeted Assistance Title I Schools	1432	655.91	24.55	654.64	657.18
<u>Differences in Means</u>			<u>P-Value</u>		
eMINTS vs. Non-eMINTS		2.91	0.0240		
<u>Effect Size Estimates</u>					
	<u>Estimate</u>	<u>Variance</u>			
Cohens D	0.120	0.003			
Hedges G	0.120	0.003			
<i>Schoolwide Title I Schools</i>					
Non-eMINTS	263	653.87	27.20	650.56	657.17
eMINTS	260	660.68	28.44	657.21	664.15
All Students in Schoolwide Title I Schools	523	657.25	28.00	654.85	659.66
<u>Differences in Means</u>			<u>P-Value</u>		
eMINTS vs. Non-eMINTS		6.81	0.0053		
<u>Effect Size Estimates</u>					
	<u>Estimate</u>	<u>Variance</u>			
Cohens D	0.245	0.008			
Hedges G	0.245	0.008			

Summary

This analysis of Title I schools shows that on the third grade Communication Arts MAP test and on both fourth grade tests, eMINTS students in Schoolwide Title I schools had higher average scores than non-eMINTS students in the same schools and the statewide average. On the Mathematics test eMINTS students scored significantly higher than non-eMINTS students regardless of the type of Title I school they were enrolled in. However, on the Communication Arts and Social Studies tests, students enrolled in both a Schoolwide Title I school and an eMINTS classroom scored higher than any other group.

These results identify a positive interaction between Title I schools types and enrollment in an eMINTS classroom. They also suggest that some feature of a Schoolwide Title I program works particularly well with the eMINTS intervention. At this time a detailed description of the all of the programs implemented by the Schoolwide Title I schools in the FY02 eMINTS cohort does not exist.

These results show higher mean scores for students in Schoolwide Title I schools and eMINTS classrooms. However, it is also necessary to consider the student test score variance around their respective classroom means. In most cases, these variances are relatively large and suggest that not all students in these schools and classrooms are benefiting from interventions like the eMINTS program to the same degree. This analysis shows differences at the school and classroom level, but this level of aggregation is too high. To fully understand the ways that the Title I and eMINTS programs interact, it is necessary to identify which students are receiving Title I-funded support. Answering a question such as, “Do students who receive Title I services benefit more from enrollment in an eMINTS classroom than do other students?” requires identification of the students who actually receive Title I services. Unfortunately, given the way the “Title I flag” on the MAP test is coded, it is not possible to reliably identify which have received Title I assistance in the course of the school year.

Both of these issues, identifying the Title I services delivered in different types of Title I schools and identifying the students who receive Title I assistance, will be addressed in the analysis of MAP test results from the FY03 eMINTS cohort. The eMINTS evaluation project is working with the Title I program to collect school-based descriptions of the Title I services students in the FY03 eMINTS schools receive and data rosters of the students who received Title I-funded educational assistance in the 2003-2004 school year.

Summary and Conclusions

This analysis of MAP scores among the FY02 eMINTS schools showed statistically significant differences between eMINTS and non-eMINTS students on the Communication Arts, Mathematics and Social Studies MAP tests. This follows a pattern of student performance differences from the FY00 eMINTS cohort. In every year eMINTS students have scores significantly higher on the fourth grade Mathematics and Social Studies tests and higher on at least one of the third grade Communication Arts and Science tests.

The analysis shows a similar pattern among low income students. Low income students in eMINTS classrooms scored higher than other low income students on the Communication Arts, Mathematics and Social Studies tests. Analysis of the interaction of eMINTS enrollment and student eligibility for the Free and Reduced Lunch program on the Mathematics test suggests that eMINTS enrollment has a differential impact on the performance of low income students and helps reduce the performance deficit for low income students by 45 percent (see Page 20).

Among special education students, there are significant differences by eMINTS enrollment on the Communication Arts and Mathematics tests. There is also an interaction term that reduces the score deficit for special education students enrolled in eMINTS classrooms by 53 percent on the Communication Arts test and by 51 percent on the Mathematics test (see Page 27).

All but one of the FY02 schools are Title I schools. eMINTS students in Schoolwide Title I schools scored significantly higher than non-eMINTS students on the Communication Arts, Mathematics and Social Studies tests. eMINTS students in Targeted Assistance schools scored significantly higher than non-eMINTS students on the Mathematics and Social Studies tests. These differences do not fully assess the interaction of the Title I and eMINTS schools because there is no way to control for student participation in the Title I program. Upcoming analyses in the FY03 eMINTS schools will be able to more fully estimate the interaction of these student, classroom and school characteristics.

This analysis continues to demonstrate the role of the eMINTS program in supporting student performance as measured by the MAP tests. These results do not isolate any particular aspect of the program; they cannot isolate the effect of multi-media technology in the classroom from the effect of instructional practice. Nevertheless, these results do support the contention that implementation of the eMINTS program in schools and classrooms does contribute to higher levels of student performance.