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Analysis of 2005 MAP Results for eMINTS Students

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The analysis of student MAP scores in the FY04 cohort of eMINTS schools shows significant differences by eMINTS enrollment status on the MAP Communication Arts and Mathematics tests. Analyses of MAP scores for special education students, students receiving Title I services and students receiving free and reduced lunch suggest that eMINTS enrollment significantly increases their scoring on the MAP tests. These results support previous analyses of eMINTS cohorts.

This report provides analyses of Missouri Assessment Program (MAP) test results for students enrolled in schools participating in the eMINTS program. The analyses are based on the 2005 MAP results released in August 2004, focusing on the 32 schools participating in the FY04 eMINTS cohort. The FY04 cohort of eMINTS teachers in schools began the eMINTS professional-development program in autumn 2002 and completed the program in spring 2004. This is the second cohort to initiate professional development following substantial changes in the funding structure and eligibility requirements for the eMINTS program. The schools in the FY04 cohort were funded by the federal competitive Title IID Enhancing Education through Technology (EETT) grant program.

Table 1

Distribution of eMINTS Classrooms by Grade Level

Grade Level	eMINTS Classroom		All Classrooms
	No	Yes	
3	24	20	44
4	35	48	83
4 to 6	0	2	2
5	17	22	39
5 and 6	0	1	1
6	2	6	8
All Teachers	78	99	177

MAP grades in **Bold**.

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/reports>.

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

Table 2
Distribution of Teachers and Students by eMINTS Status and MAP Test:
3rd and 4th Grade

	Number of Teachers	Number of Students
<i>Communication Arts</i>		
Non-eMINTS Classroom	18	352
eMINTS Classroom	20	372
Total	38	724
<i>Mathematics</i>		
Non-eMINTS Classroom	28	577
eMINTS Classroom	44	929
Total	72	1506

The eMINTS Program

eMINTS is designed to transform the instructional process by supporting elementary teachers as they develop student-centered, inquiry-based instructional practices using a wide range of multimedia and computer technology. Teachers and students explore interactive learning experiences that require them to use critical-thinking skills and group problem-solving techniques. Significant professional development sessions along with in-classroom coaching and mentoring are key change agents in this project.

Each eMINTS teacher participates in more than 250 hours of ongoing professional development during a two-year period. The professional development sessions are supplemented by instructional specialists who coach and support eMINTS teachers in their classrooms. Each eMINTS classroom is equipped with a teacher computer and laptop, a scanner, a color printer, a digital camera, an interactive whiteboard (a SMART Board™), a high lumen projector and one computer for every two students. Student computers are outfitted with a standard suite of productivity software. All eMINTS computers are connected to the MOREnet high-speed Internet backbone.

The FY04 eMINTS Cohort

The FY04 eMINTS cohort consists of 32 schools from 32 districts. The eMINTS program funded at least two classrooms in each school and required that participating schools install at least one eMINTS classroom in the third or fourth grade. Other classrooms could be installed in other grades in the school. Table 1 presents the grade-level distribution of eMINTS and non-eMINTS classrooms. Table 2 presents the numbers, by MAP test, of third- and fourth-grade students in eMINTS classrooms. The total number of students in grades three and four in the FY04 cohort schools was 2230, and about 58 % of these students were enrolled in eMINTS classrooms in the 2004-2005 school year.

The range of grades represented in Table 1 highlights the complexity of the eMINTS program beginning with the 2002-2003 school year. This complexity is due to the overall grant structure of the Title IID program. This program enforced different school-

eligibility criteria and allowed for schools to add additional eMINTS classrooms and teachers in the second year of the grant.

The FY04 cohort is the second eMINTS cohort to use federal Title IID competitive funds as its primary funding source. Using this funding source substantially changed the eligibility criteria for participation in the eMINTS program. Prior to 2002, staffing constraints occasionally limited the geographic areas of applications, but, for the most part, all Missouri elementary schools were eligible to apply. Beginning in 2002, the pool of eligible schools was limited by federal poverty criteria. This change has rendered the comparison of MAP results from eMINTS schools to statewide MAP results inappropriate. As the population of eligible schools is no longer all Missouri elementary schools, this report will not compare results from eMINTS schools to the statewide totals. Instead, this report will compare MAP scores among schools participating in the FY04 cohort.

The Report

This report focuses on MAP Communication Arts and Mathematics test scores for students enrolled in eMINTS classrooms by the following student characteristics: student special education status (IEP), student receipt of Title I services, student income status as measured by participation in the USDA free and reduced lunch program, student gender and student race. MAP tests are standards-based assessments administered statewide in grades three through five, grades seven through nine and grades ten and eleven. The assessment includes constructed response items and performance events in addition to multiple-choice items. In school year 2004-2005 two MAP tests were administered. The MAP tests relevant to the 2004 eMINTS analysis are the third grade Communication Arts test and the fourth grade Mathematics test.

In this report MAP scores are reported in two ways:

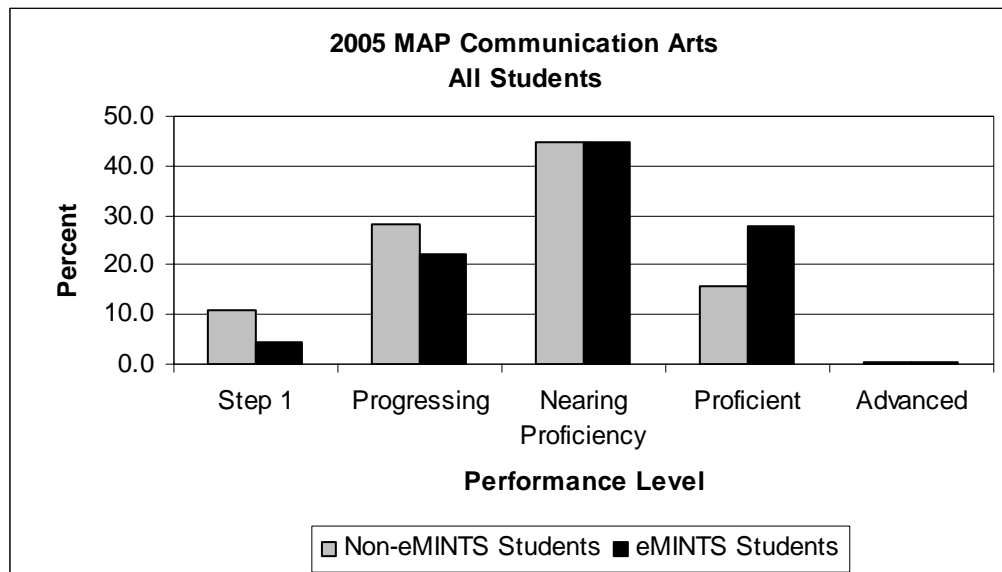
- 1) Using the percentage distribution of the five-category Achievement Level scale, and
- 2) Using the raw MAP score.

The first measure is the conventional measure used to assess the performance of school buildings. The raw score allows for the quantitative characterization of individual students and their differences.

MAP Achievement Levels

Individual student performance on the various MAP tests is typically expressed in terms of a five-category achievement level scale. This scale, "Step 1," "Progressing," "Nearing Proficiency," "Proficient" and "Advanced," provides a general gauge of performance. For buildings the overall percentage distribution of these five achievement levels is used as an aggregate measure of school performance. The analysis below compares all eMINTS classes to the non-eMINTS classes in all participating schools.

Figure 1
2005 MAP Communication Arts Performance Level by FY04 eMINTS Status: FY04
eMINTS Student versus Non-eMINTS Student

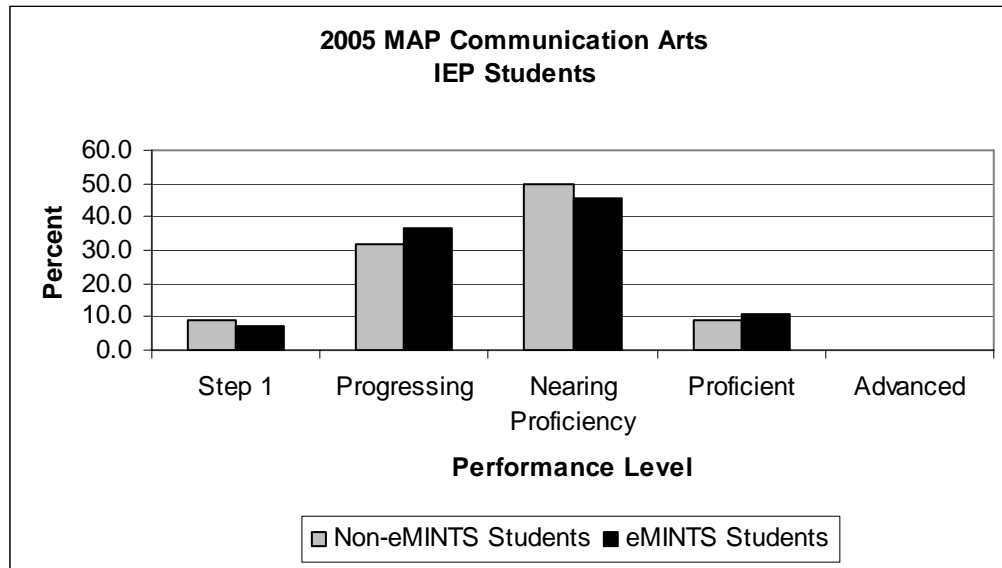


	Non-eMINTS Students	eMINTS Students
Step 1	11.1	4.6
Progressing	28.1	22.3
Nearing Proficiency	44.6	44.9
Proficient	15.6	27.7
Advanced	0.6	0.5
Total	100.0	100.0
Number of Students	352	372
P-Value		
eMINTS vs. Non-eMINTS Students	.000	

Results for Communication Arts – All Students

Analysis of the Communication Arts test for all students indicated a significantly higher percentage of students enrolled in eMINTS classrooms scored in the “Proficient” category (see Figure 1). Nearly 28 percent of students in eMINTS classrooms scored in the “Proficient” category, compared to 15.6 percent of third graders in non-eMINTS classrooms. A significantly lower percentage of students enrolled in eMINTS classrooms scored in the “Step 1” and “Progressing” categories. Fewer than five percent of students in eMINTS classrooms scored in the “Step 1” category, compared to 11.1 percent of third graders in non-eMINTS classrooms. A little more than 22 percent of students in eMINTS classrooms scored in the “Progressing” category, compared to 28.1 percent of students in non-eMINTS classrooms.

Figure 2
2005 MAP Communication Arts Performance Level by FY04 Student Status: IEP
Students in FY04 eMINTS Classrooms versus Non-eMINTS IEP Students

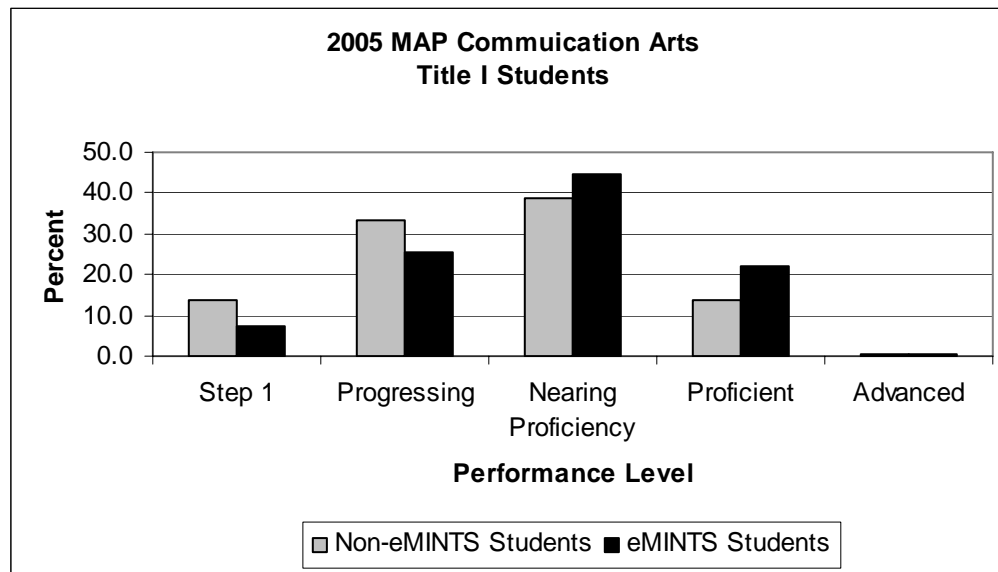


	Non-eMINTS IEP Students	eMINTS IEP Students
Step 1	9.1	7.3
Progressing	31.8	36.4
Nearing Proficiency	50.0	45.5
Proficient	9.1	10.9
Advanced	0.0	0.0
Total	100.0	100.0
Number of Students	44	55
P-Value eMINTS vs. Non-eMINTS Students	.954	

Results for Communication Arts – IEP Students

Analysis of the Communication Arts test for IEP students indicated that there were no statistically significant differences between the percentage of eMINTS students scoring in a particular category and the percentage of non-eMINTS students. The difference between eMINTS and non-eMINTS students in the “Proficient” category was 1.8 percentage points (see Figure 2).

Figure 3
2005 MAP Communication Arts Performance Level by FY04 Student Status: Title I Students in FY04 eMINTS Classrooms versus Non-eMINTS Title I Students

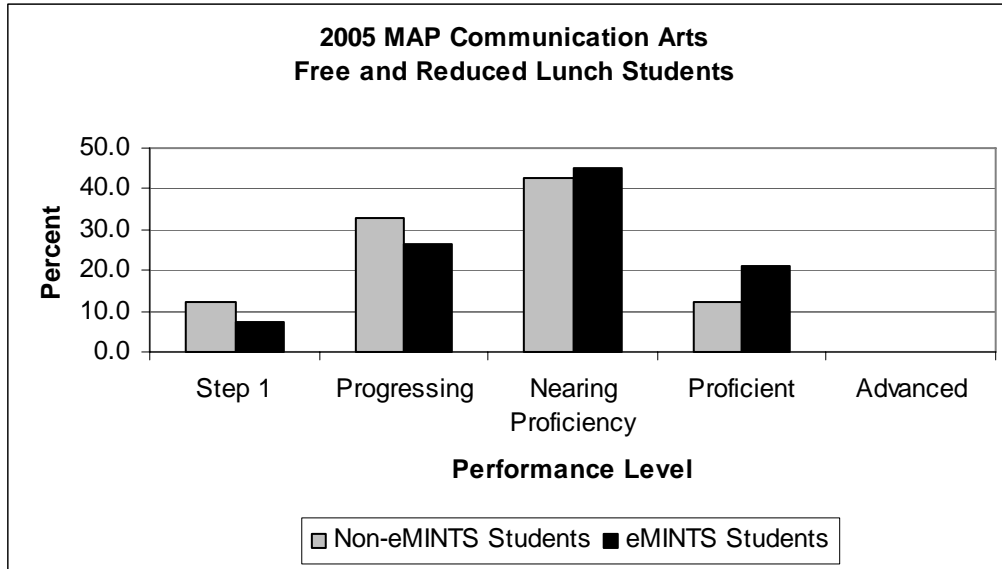


	Non-eMINTS Title I Students	eMINTS Title I Students
Step 1	13.7	7.2
Progressing	33.3	25.3
Nearing Proficiency	38.7	44.8
Proficient	13.7	22.2
Advanced	0.6	0.5
Total	100.0	100.0
Number of Students	168	194
P-Value eMINTS vs. Non-eMINTS Students	.002	

Results for Communication Arts – Title I Students

Analysis of the Communication Arts test for Title I students indicated a significantly higher percentage of students enrolled in eMINTS classrooms scored in the “Nearing Proficiency” and “Proficient” categories (see Figure 3). Nearly 45 percent of students in eMINTS classrooms scored in the “Nearing Proficiency” category, compared to 38.7 percent of third graders in non-eMINTS classrooms. Approximately 22 percent of students in eMINTS classrooms score in the “Proficient” category, compared to 13.7 percent of non-eMINTS students.

Figure 4
2005 MAP Communication Arts Performance Level by FY04 Student Status: Free and Reduced Lunch Students in FY04 eMINTS Classrooms versus Non-eMINTS Free and Reduced Lunch Students

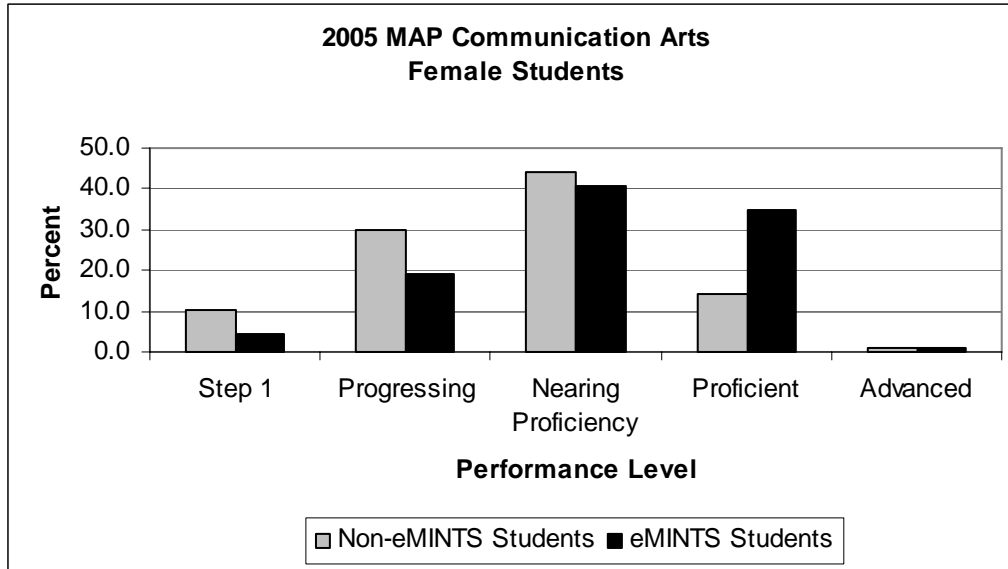


	Non-eMINTS FRL Students	eMINTS FRL Students
Step 1	12.4	7.2
Progressing	32.6	26.4
Nearing Proficiency	42.5	45.2
Proficient	12.4	21.2
Advanced	0.0	0.0
Total	100.0	100.0
Number of Students	233	208
P-Value		
eMINTS vs. Non-eMINTS Students	.002	

Results for Communication Arts – Free and Reduced Lunch Students

Analysis of the Communication Arts test for free and reduced lunch students indicated a significantly higher percentage of students enrolled in eMINTS classrooms scored in the “Nearing Proficiency” and “Proficient” categories (see Figure 4). Approximately 45 percent of students in eMINTS classrooms scored in the “Nearing Proficiency” category, compared to 42.5 percent of third graders in non-eMINTS classrooms. About 21 percent of students in eMINTS classrooms score in the “Proficient” category, compared to 12.4 percent of non-eMINTS students.

Figure 5
2005 MAP Communication Arts Performance Level by FY04 Student Status:
Female Students in FY04 eMINTS Classrooms versus Non-eMINTS Female
Students

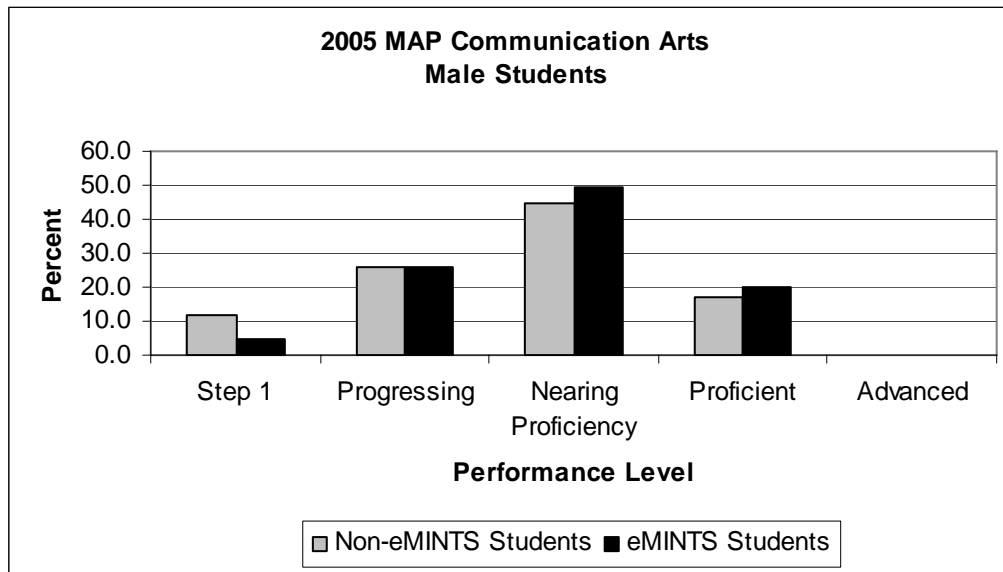


	Non-eMINTS Female Students	eMINTS Female Students
Step 1	10.2	4.2
Progressing	30.1	19.0
Nearing Proficiency	44.3	40.7
Proficient	14.2	34.9
Advanced	1.1	1.1
Total	100.0	100.0
Number of Students	176	189
P-Value eMINTS vs. Non-eMINTS Students	.000	

Results for Communication Arts – Female Students

Analysis of the Communication Arts test for female students indicated a significantly higher percentage of female students enrolled in eMINTS classrooms scored in the “Proficient” category (see Figure 5). Nearly 35 percent of female students in eMINTS classrooms scored in the “Proficient” category, compared to 14.2 percent of female third graders in non-eMINTS classrooms.

Figure 6
2005 MAP Communication Arts Performance Level by FY04 Student Status: Male Students in FY04 eMINTS Classrooms versus Non-eMINTS Male Students

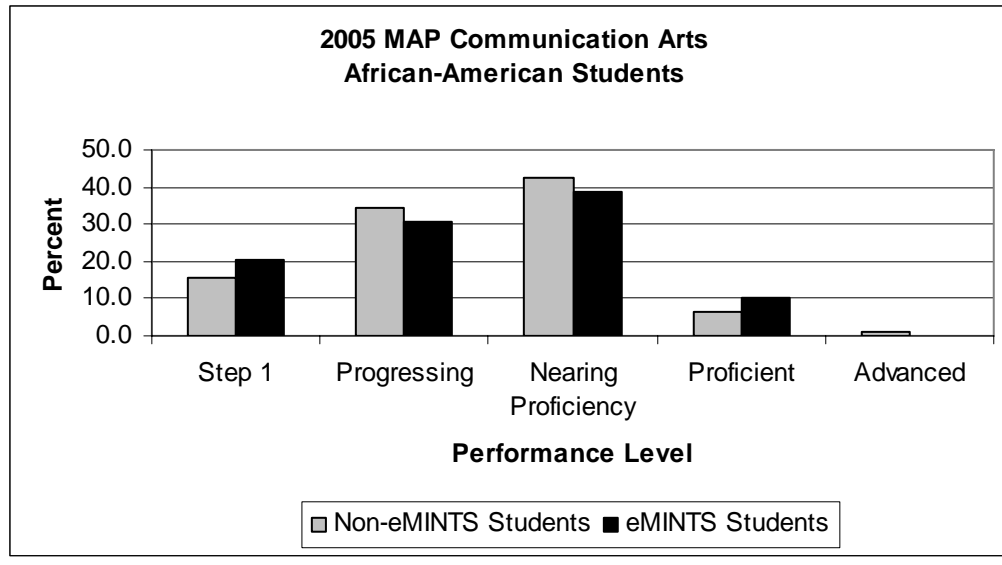


	Non-eMINTS Male Students	eMINTS Male Students
Step 1	11.9	4.9
Progressing	26.1	25.7
Nearing Proficiency	44.9	49.2
Proficient	17.0	20.2
Advanced	0.0	0.0
Total	100.0	100.0
Number of Students	176	183
P-Value eMINTS vs. Non-eMINTS Students	.049	

Results for Communication Arts – Male Students

Analysis of the Communication Arts test for male students indicated a significantly higher percentage of male students enrolled in eMINTS classrooms scored in the “Nearing Proficiency” and “Proficient” categories (see Figure 6). Nearly 50 percent of male students in eMINTS classrooms scored in the “Nearing Proficiency” category, compared to almost 45 percent of male third graders in non-eMINTS classrooms. Slightly more than 20 percent of male students in eMINTS classrooms scored in the “Proficient” category, compared to 17 percent of non-eMINTS male students.

Figure 7
2005 MAP Communication Arts Performance Level by FY04 Student Status:
African American Students in FY04 eMINTS Classrooms versus Non-eMINTS
African-American Students

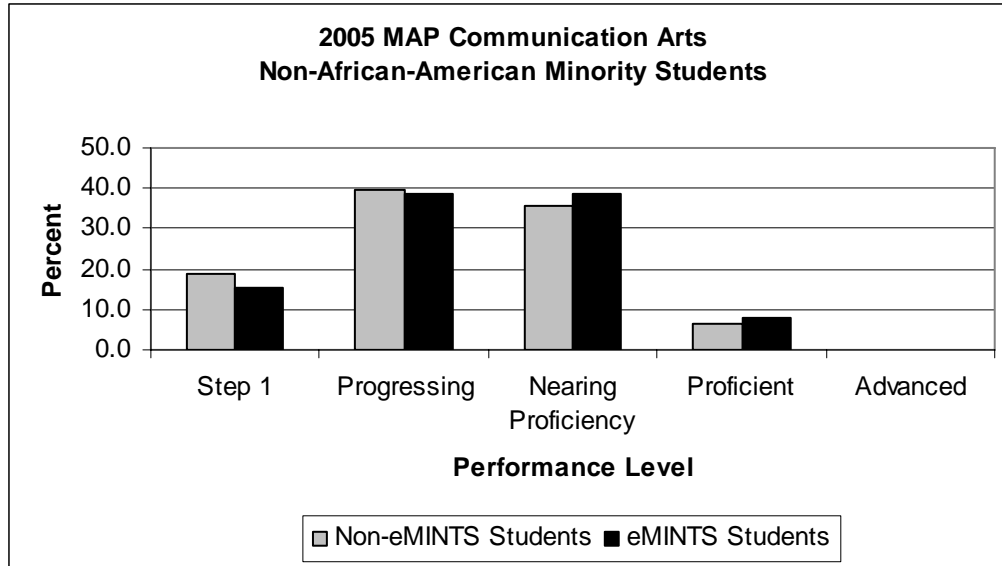


	Non-eMINTS African-American Students	eMINTS African- American Students
Step 1	15.4	20.5
Progressing	34.6	30.8
Nearing Proficiency	42.3	38.5
Proficient	6.4	10.3
Advanced	1.3	0.0
Total	100.0	100.0
Number of Students	78	39
P-Value eMINTS vs. Non-eMINTS Students	.771	

Results for Communication Arts – African American Students

Analysis of the Communication Arts test for African-American students indicated that there were no statistically significant differences between the percentage of eMINTS students scoring in a particular category and those for non-eMINTS students. The difference between eMINTS and non-eMINTS students in the “Proficient” category was 3.9 percentage points (see Figure 7).

Figure 8
2005 MAP Communication Arts Performance Level by FY04 Student Status:
Non-African-American Minority Students in FY04 eMINTS Classrooms versus
Non-eMINTS Non-African-American Minority Students

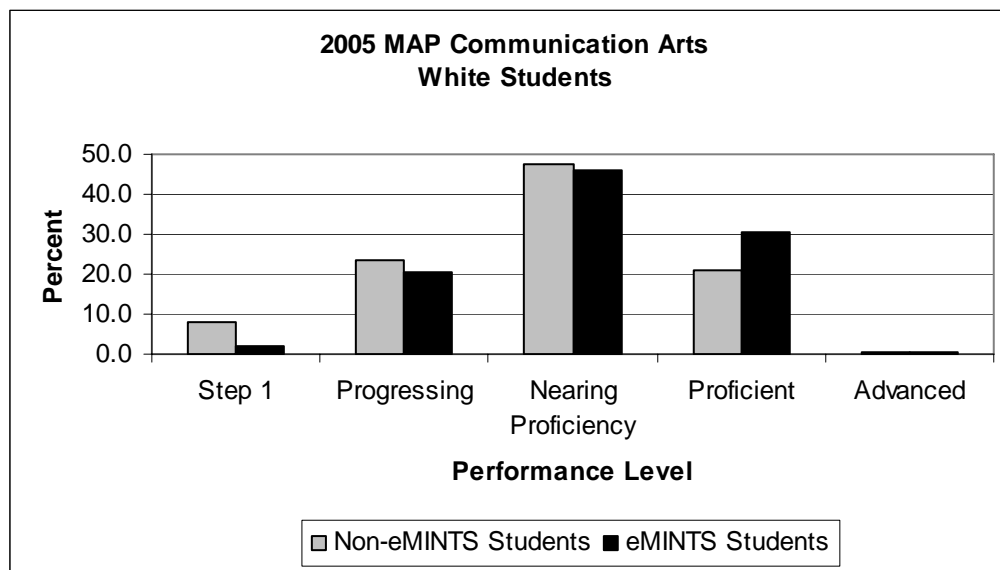


	Non-eMINTS Non-African-American Minority Students	eMINTS Non-African-American Minority Students
Step 1	18.8	15.4
Progressing	39.6	38.5
Nearing Proficiency	35.4	38.5
Proficient	6.3	7.7
Advanced	0.0	0.0
Total	100.0	100.0
Number of Students	48	13
P-Value eMINTS vs. Non-eMINTS Students	.729	

Results for Communication Arts – Non-African American Minority Students

Analysis of the Communication Arts test for non-African-American minority students indicated that there were no statistically significant differences between the percentage of eMINTS students scoring in a particular category and those for non-eMINTS students. The difference between eMINTS and non-eMINTS students in the “Proficient” category was 1.4 percentage points (see Figure 8).

Figure 9
2005 MAP Communication Arts Performance Level by FY04 Student Status:
White Students in FY04 eMINTS Classrooms versus Non-eMINTS White Students

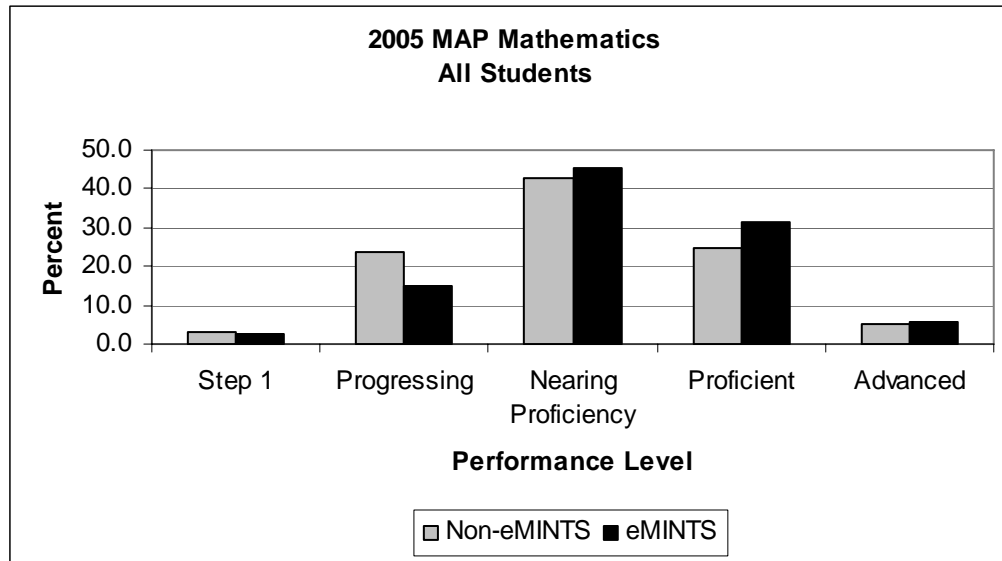


	Non-eMINTS White Students	eMINTS White Students
Step 1	8.0	2.2
Progressing	23.5	20.6
Nearing Proficiency	47.3	45.9
Proficient	20.8	30.6
Advanced	0.4	0.6
Total	100.0	100.0
Number of Students	226	320
P-Value		
eMINTS vs. Non-eMINTS Students	.001	

Results for Communication Arts – White Students

Analysis of the Communication Arts test for white students indicated a significantly higher percentage of white students enrolled in eMINTS classrooms scored in the “Proficient” category (see Figure 9). Slightly more than 30 percent of white students in eMINTS classrooms scored in the “Proficient” category, compared to 20.8 percent of white third graders in non-eMINTS classrooms.

Figure 10
2005 MAP Mathematics Performance Level by FY04 eMINTS Status:
FY04 eMINTS Student versus Non-eMINTS Student

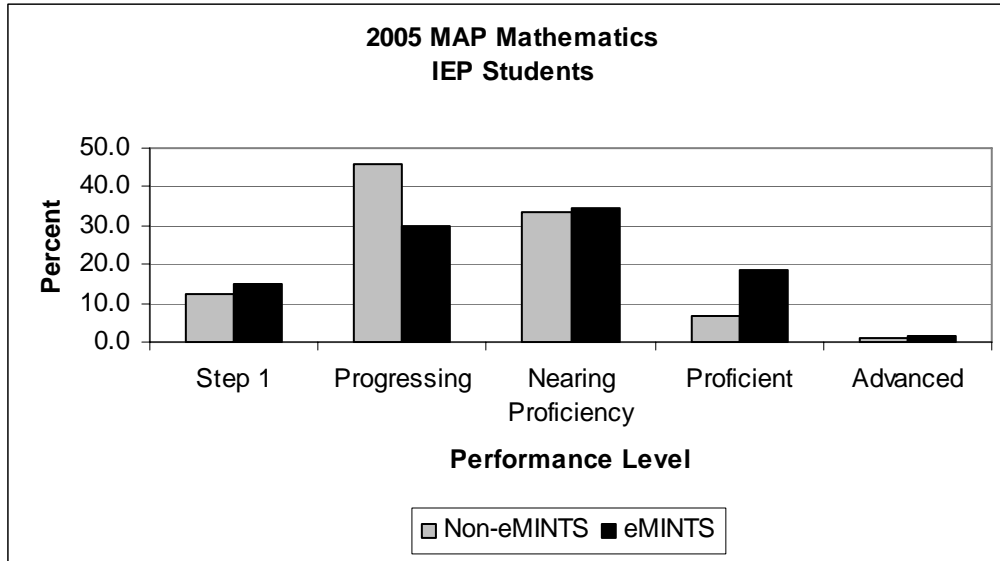


	Non-eMINTS Students	eMINTS Students
Step 1	2.9	2.7
Progressing	23.9	14.7
Nearing Proficiency	43.0	45.2
Proficient	25.0	31.6
Advanced	5.2	5.7
Total	100.0	100.0
Number of Students	577	929
P-Value eMINTS vs. Non-eMINTS Students	.000	

Results for Mathematics – All Students

Analysis of the mathematics test for all students indicated a significantly higher percentage of students enrolled in eMINTS classrooms scored in the “Nearing Proficiency”, “Proficient” and “Advanced” categories (see Figure 10). Slightly more than 45 percent of students enrolled in eMINTS classrooms scored in the “Nearing Proficiency” category, compared to 43 percent of students in non-eMINTS classrooms. Almost 32 percent of students enrolled in eMINTS classrooms scored in the “Proficient” category, compared to 25 percent of students in non-eMINTS classrooms.

Figure 11
2005 MAP Mathematics Performance Level by FY04 Student Status:
IEP Students in FY04 eMINTS Classrooms versus Non-eMINTS IEP Students

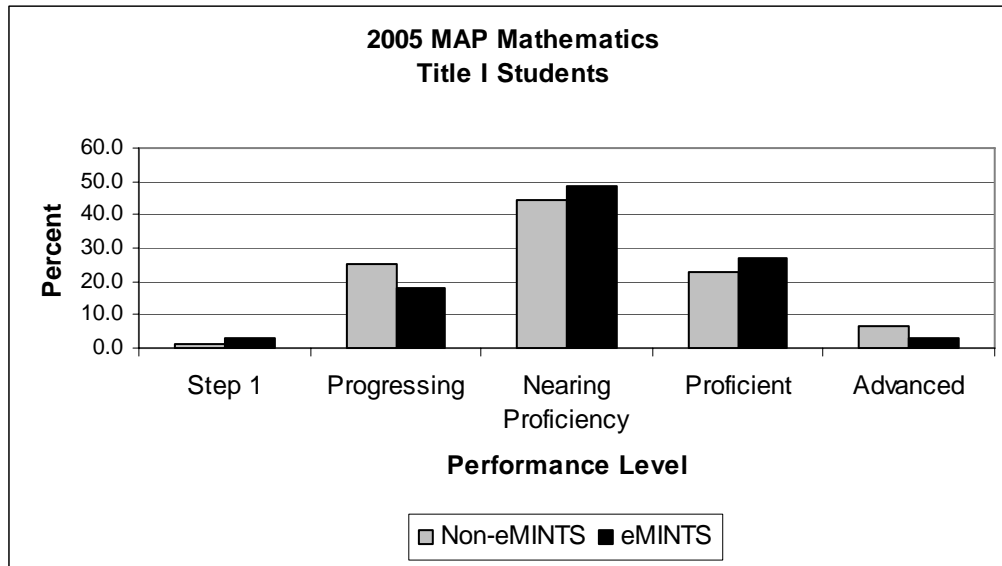


	Non-eMINTS IEP Students	eMINTS IEP Students
Step 1	12.4	15.0
Progressing	46.1	30.1
Nearing Proficiency	33.7	34.5
Proficient	6.7	18.6
Advanced	1.1	1.8
Total	100.0	100.0
Number of Students	89	113
P-Value eMINTS vs. Non-eMINTS Students	.075	

Results for Mathematics – IEP Students

Analysis of the mathematics test for IEP students indicated a non-statistically significant, but higher percentage of students enrolled in eMINTS classrooms scoring in the “Nearing Proficiency”, “Proficient” and “Advanced” categories (see Figure 11). Slightly more than 34 percent of students enrolled in eMINTS classrooms scored in the “Nearing Proficiency” category, compared to 33.7 percent of students in non-eMINTS classrooms. Almost 19 percent of students enrolled in eMINTS classrooms scored in the “Proficient” category, compared to 6.7 percent of students in non-eMINTS classrooms. Almost two percent of IEP students enrolled in eMINTS classrooms scored in the “Advanced” category, compared to 1.1 percent of IEP students in non-eMINTS classrooms.

Figure 12
2005 MAP Mathematics Performance Level by FY04 Student Status:
Title I Students in FY04 eMINTS Classrooms versus Non-eMINTS Title I Students

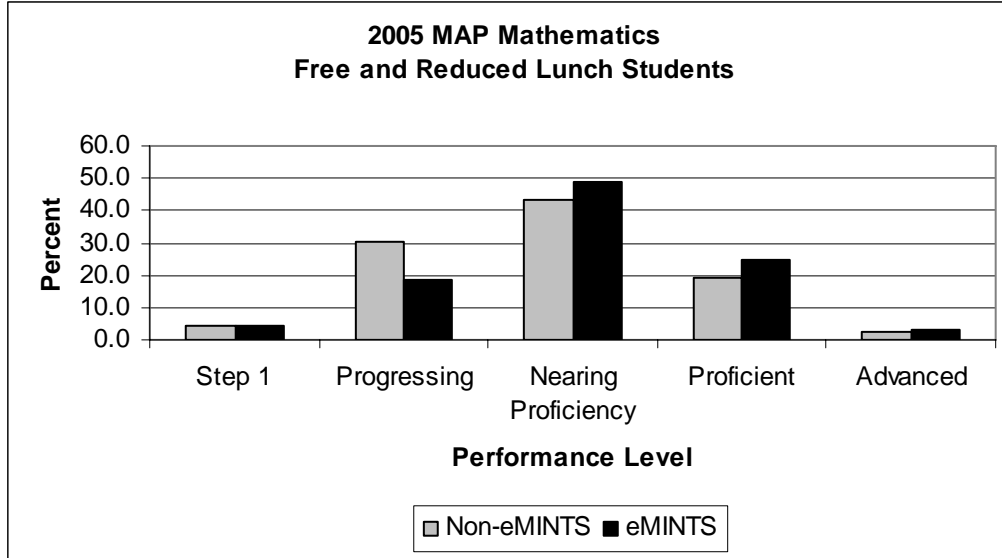


	Non-eMINTS Title I Students	eMINTS Title I Students
Step 1	1.3	3.1
Progressing	25.2	18.1
Nearing Proficiency	44.1	48.8
Proficient	22.7	27.1
Advanced	6.7	2.8
Total	100.0	100.0
Number of Students	238	387
P-Value eMINTS vs. Non-eMINTS Students	.986	

Results for Mathematics – Title I Students

Analysis of the mathematics test for Title I students indicated that there were no statistically significant differences between the percentage of eMINTS students scoring in a particular category and those for non-eMINTS students. The difference between eMINTS and non-eMINTS Title I students in the “Proficient” category was 4.4 percentage points (see Figure 12).

Figure 13
2005 MAP Mathematics Performance Level by FY04 Student Status:
Free and Reduced Lunch Students in FY04 eMINTS Classrooms versus
Non-eMINTS Free and Reduced Lunch Students

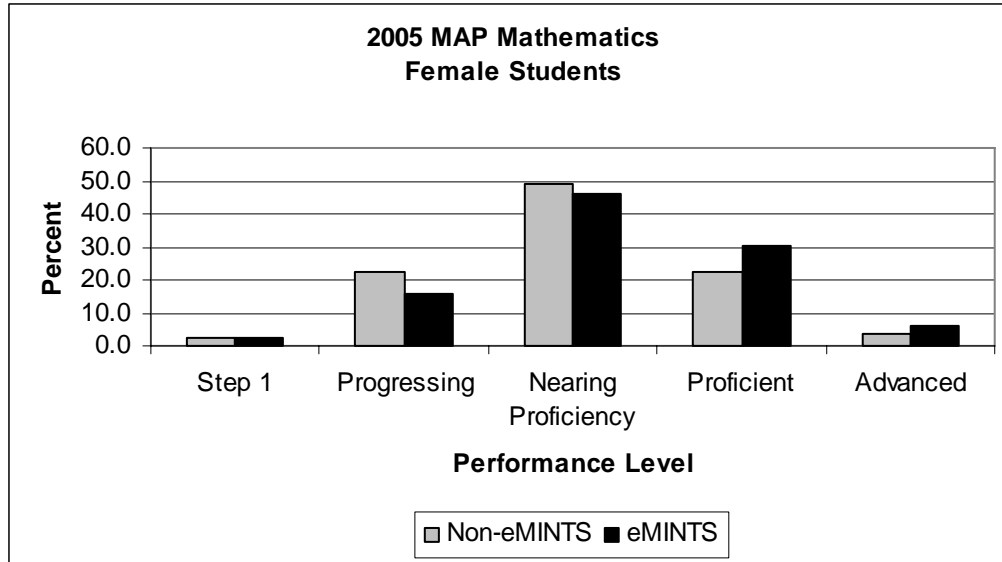


	Non-eMINTS FRL Students	eMINTS FRL Students
Step 1	4.6	4.5
Progressing	30.1	18.7
Nearing Proficiency	43.4	48.8
Proficient	19.4	24.9
Advanced	2.6	3.0
Total	100.0	100.0
Number of Students	346	465
P-Value eMINTS vs. Non-eMINTS Students	.004	

Results for Mathematics – Free and Reduced Lunch Students

Analysis of the mathematics test for free and reduced lunch students indicated a significantly higher percentage of students enrolled in eMINTS classrooms scored in the “Nearing Proficiency”, “Proficient” and “Advanced” categories (see Figure 13). Almost 49 percent of students in eMINTS classrooms scored in the “Nearing Proficiency” category, compared to 43.4 percent of fourth graders in non-eMINTS classrooms. About 25 percent of students in eMINTS classrooms score in the “Proficient” category, compared to 19.4 percent of non-eMINTS students.

Figure 14
2005 MAP Mathematics Performance Level by FY04 Student Status:
Female Students in FY04 eMINTS Classrooms versus Non-eMINTS Female
Students

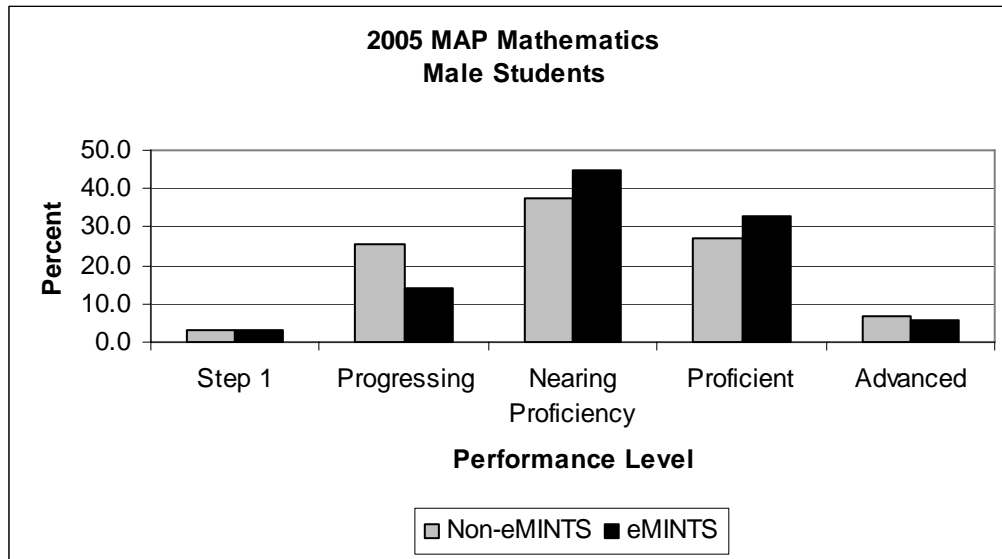


	Non-eMINTS Female Students	eMINTS Female Students
Step 1	2.7	2.5
Progressing	22.3	15.5
Nearing Proficiency	49.2	45.8
Proficient	22.3	30.3
Advanced	3.5	5.8
Total	100.0	100.0
Number of Students	260	445
P-Value eMINTS vs. Non-eMINTS Students	.003	

Results for Mathematics – Female Students

Analysis of the mathematics test for female students indicated a significantly higher percentage of female students enrolled in eMINTS classrooms scored in the “Proficient” and “Advanced” categories (see Figure 14). Slightly more than 30 percent of the female students enrolled in eMINTS classrooms scored in the “Proficient” category, compared to 22.3 percent of female students in non-eMINTS classrooms. Nearly six percent of female students in eMINTS classrooms scored in the “Advanced” category, compared to 3.5 percent of female students in non-eMINTS classrooms.

Figure 15
2005 MAP Mathematics Performance Level by FY04 Student Status:
Male Students in FY04 eMINTS Classrooms versus Non-eMINTS Male Students

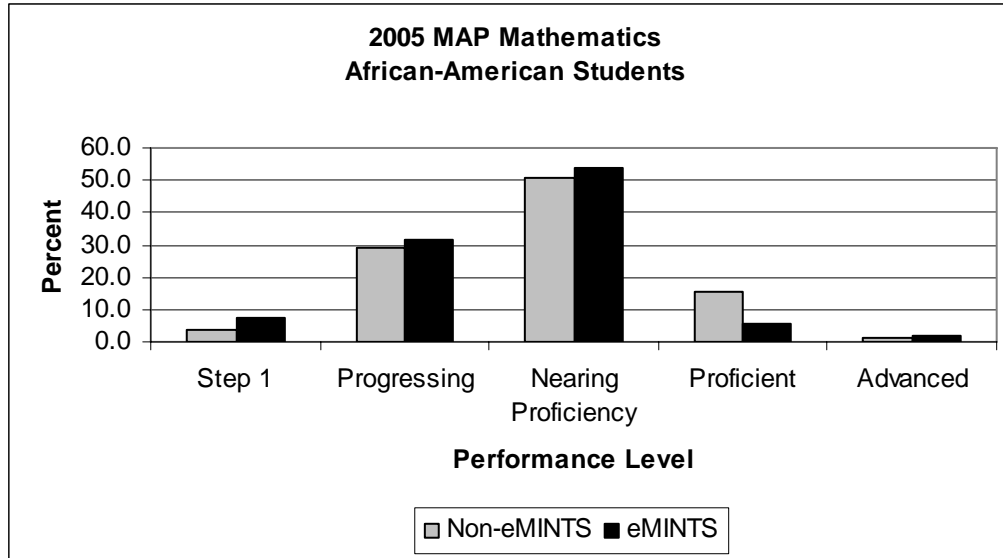


	Non-eMINTS Male Students	eMINTS Male Students
Step 1	3.2	2.9
Progressing	25.4	14.0
Nearing Proficiency	37.5	44.6
Proficient	27.3	32.9
Advanced	6.7	5.6
Total	100.0	100.0
Number of Students	315	484
P-Value eMINTS vs. Non-eMINTS Students	.020	

Results for Mathematics – Male Students

Analysis of the mathematics test for male students indicated a significantly higher percentage of male students enrolled in eMINTS classrooms scored in the “Nearly Proficient” and “Proficient” categories (see Figure 15). About 45 percent of male students enrolled in eMINTS classrooms scored in the “Nearing Proficiency” category, compared to 37.5 percent of male students in non-eMINTS classrooms. Almost 33 percent of male students enrolled in eMINTS classrooms scored in the “Proficient” category, compared to 27.3 percent of male students enrolled in non-eMINTS classrooms.

Figure 16
2005 MAP Mathematics Performance Level by FY04 Student Status:
African- American Students in FY04 eMINTS Classrooms versus Non-eMINTS
African-American Students

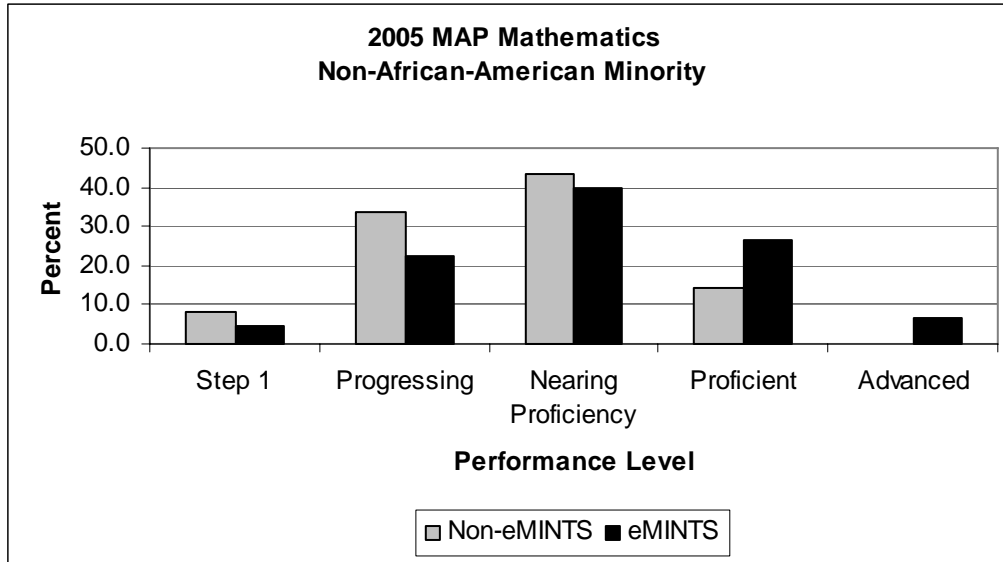


	Non-eMINTS African-American Students	eMINTS African- American Students
Step 1	3.8	7.4
Progressing	28.8	31.5
Nearing Proficiency	51.0	53.7
Proficient	15.4	5.6
Advanced	1.0	1.9
Total	100.0	100.0
Number of Students	104	54
P-Value eMINTS vs. Non-eMINTS Students	.175	

Results for Mathematics – African-American Students

Analysis of the mathematics test for African-American students indicated that no statistically significant difference exists between the percentage of eMINTS students and non-eMINTS students on the fourth grade MAP mathematics test. The difference between eMINTS and non-eMINTS African-American students in the “Proficient” category was 9.8 percentage points (see Figure 16).

Figure 17
2005 MAP Mathematics Performance Level by FY04 Student Status:
Non-African-American Minority Students in FY04 eMINTS Classrooms versus
Non-eMINTS Non-African-American Minority Students

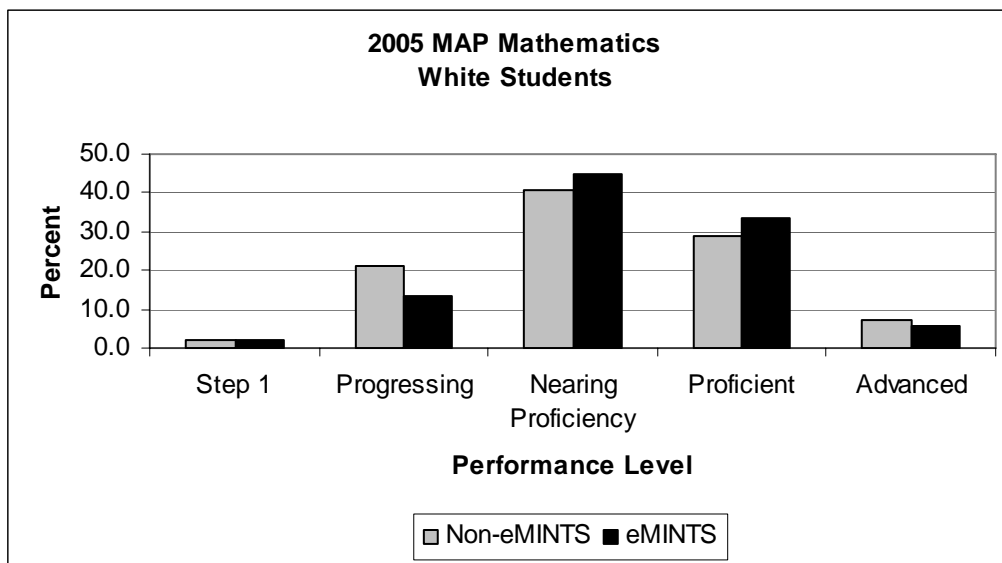


	Non-eMINTS Non-African-American Minority Students	eMINTS Non-African-American Minority Students
Step 1	8.1	4.4
Progressing	33.9	22.2
Nearing Proficiency	43.5	40.0
Proficient	14.5	26.7
Advanced	0.0	6.7
Total	100.0	100.0
Number of Students	62	45
P-Value eMINTS vs. Non-eMINTS Students	.013	

Results for Mathematics – Non-African-American Minority Students

Analysis of the mathematics test for non-African-American minority students indicated a significantly higher percentage of minority students enrolled in eMINTS classrooms scored in the “Proficient” and “Advanced” categories (see Figure 17). Nearly 27 percent of non-African-American minority students enrolled in eMINTS classrooms scored in the “Proficient” category, compared to 14.5 percent of non-African-American minority students enrolled in non-eMINTS classrooms. Nearly seven percent of minority students enrolled in eMINTS classrooms scored in the “Advanced” category, while no minority students in non-eMINTS classrooms scored in the “Proficient” category.

Figure 18
2005 MAP Communication Arts Performance Level by FY04 Student Status:
White Students in FY04 eMINTS Classrooms versus Non-eMINTS White Students



	Non-eMINTS White Students	eMINTS White Students
Step 1	1.9	2.3
Progressing	21.2	13.3
Nearing Proficiency	40.9	44.9
Proficient	29.0	33.6
Advanced	7.1	5.9
Total	100.0	100.0
Number of Students	411	830
P-Value eMINTS vs. Non-eMINTS Students	.068	

Results for Mathematics – White Students

Analysis of the mathematics test for white students indicated that there were no statistically significant differences between the percentage of eMINTS students scoring in a particular category and those for non-eMINTS students. eMINTS students scored and non-eMINTS white students in the “Proficient” category was 4.6 percent (see Figure 18).

MAP Scores by eMINTS Enrollment and Student Characteristics

The second set of analysis compares the mean student MAP scores by eMINTS enrollment and selected student characteristics: special education, Title I, free and reduced lunch status, gender and race. The analysis first examines outcomes for third grade eMINTS and non-eMINTS students on the MAP Communication Arts test. An analysis of mean MAP scores by eMINTS and non-eMINTS students on the fourth grade MAP Mathematics test follows.

An analysis of variance (one-way ANOVA) was conducted to determine how alike or different MAP outcomes were for eMINTS and non-eMINTS students. For each group the probability value (P-Value) of the F-Statistic* was reported, indicating the statistical significance of an effect that occurs that is not due to random chance. The accepted P-Value level of significance is .05, or five percent, or one in 20. Thus, for this analysis, a P-Value of .05 or smaller indicates that 95% or more of the time the difference between MAP outcomes for eMINTS and non-eMINTS students is not due to random chance. Although the P-Value is useful for determining that a difference between groups exists, it does not explain the strength of the effect. In other words, how different are the groups found to be statistically significantly different. The ETA test measures the strength of the relationship between two groups found to be statistically different, in this case, how differently did students in eMINTS and non-eMINTS classrooms perform on the MAP. The larger the ETA value the stronger the relationship between the two variables.

Results for Communication Arts

The results of the association between third grade eMINTS enrollment, student characteristics, and MAP communication arts raw scores can be seen in Table 3. When considered in aggregate, third grade students in eMINTS classrooms scored significantly higher than their counterparts in non-eMINTS classrooms. The trend holds for five of the eight student categories, indicating that enrollment in the eMINTS program has a significant influence on increasing MAP scores in Communication Arts.

Findings (see Table 3) indicate that, on average, students enrolled in eMINTS classrooms scored more than ten points higher on the MAP Communication Arts test than students not enrolled in eMINTS classrooms. Likewise, third grade, Title I students enrolled in eMINTS classrooms scored almost ten points higher on the MAP Communication Arts test than those who were not enrolled in eMINTS classrooms, as did eMINTS students qualifying for the USDA free and reduced lunch program. eMINTS enrollment had the strongest effect on female students. Female students enrolled in eMINTS classrooms scored more than 14 points higher than female students in non-eMINTS classrooms. While influence of eMINTS enrollment was not as strong for male students, male students enrolled in eMINTS classrooms scored on average approximately six points higher than non-eMINTS, male students. Male students enrolled in eMINTS classrooms scored a little more than 6 points higher on MAP Communication Arts test than male students in non-eMINTS classrooms. White students enrolled in eMINTS classrooms

* The F-statistic is the ratio of the between groups estimate of variance and the within group estimate of variance.

scored slightly more than eight points higher on the MAP Communication Arts test than white students enrolled in non-eMINTS classrooms.

Three categories of eMINTS students did not score significantly different than their non-eMINTS counterparts. On average, IEP students enrolled in eMINTS classrooms scored approximately two points higher on MAP Communication Arts test than IEP students enrolled in non-eMINTS classroom. African-American students enrolled in eMINTS classrooms scored an average of three points lower than African-American students enrolled in non-eMINTS classrooms, though the difference did not constitute statistical significance. Non-African-American minority eMINTS students scored five points higher on the MAP Communication Arts test than non-African-American students enrolled in non-eMINTS classrooms, also a non-statistically significant difference.

Table 3
3rd Grade MAP Communication Arts Scores by eMINTS Enrollment 2004-2005

	Non-eMINTS MAP Score	eMINTS MAP Score	Total Students	P-Value Attained Significance*	Eta**
Total Students	627.6	638.0	724	0.000	0.173
IEP	624.5	626.1	99	0.753	
Title I	623.2	632.2	362	0.004	0.149
FRL	623.6	632.7	441	0.001	0.152
Female	628.2	642.4	365	0.000	0.234
Male	627.1	633.4	359	0.040	0.108
African-American	620.1	616.8	117	0.600	
Non-African- American Minority	614.5	619.5	61	0.581	
White	633.0	641.3	546	0.001	0.147

* Significance of F-test defined as <.05

** <.10 small effect size, .10-.25 medium effect size, .25> large effect size

Results for Mathematics

The results of the association between fourth grade eMINTS enrollment, student characteristics, and MAP Mathematics raw scores can be seen in Table 4. Similar to Communication Arts results, enrollment in an eMINTS classroom significantly increases student MAP scores in Mathematics.

Findings (see Table 4) indicate that students enrolled in eMINTS classrooms scored approximately six points higher on the MAP Mathematics test, on average, than students enrolled in non-eMINTS classrooms. Additionally, five of the eight sub-groups of students scored significantly higher when enrolled in an eMINTS classroom. Students participating in the free and reduced lunch program and enrolled in an eMINTS classroom scored approximately seven points higher on the MAP Mathematics test than students participating in free and reduced lunch programs enrolled in non-eMINTS

classrooms. Female students enrolled in eMINTS classrooms scored nearly eight points higher on MAP Mathematics tests than female students enrolled in non-eMINTS classrooms. Male students enrolled in eMINTS classrooms scored slightly more than five points higher on MAP Mathematics test than male students enrolled in non-eMINTS classrooms. Non-African-American minority eMINTS students realized the strongest effect. Non-African-American minority students enrolled in eMINTS classrooms scored, on average, nearly 19 points higher than their non-African-American counterparts.

Consistent with the MAP Communication Arts analysis, neither IEP nor African-American students enrolled in eMINTS classrooms scored significantly higher on the MAP Mathematics test than African-American students in non-eMINTS classrooms. Additionally, unlike the MAP Communication Arts analysis, enrollment in eMINTS classrooms did not have a significant influence on MAP Mathematics scores for Title I students when compared to Title I students enrolled in non-eMINTS classrooms.

Table 4
4th Grade MAP Mathematics Scores by eMINTS Enrollment 2004-2005

	Non-eMINTS MAP Score	eMINTS MAP Score	Total Students	P-Value Attained Significance*	Eta**
Total Students	634.8	641.3	1506	0.000	0.090
IEP	606.9	614.4	202	0.176	
Title I	636.9	635.4	625	0.582	
FRL	626.0	633.4	811	0.003	0.104
Female	633.1	640.8	705	0.003	0.110
Male	636.3	641.7	799	0.038	0.073
African-American	624.2	616.8	158	0.152	
Non-African- American Minority	617.3	635.8	107	0.013	0.240
White	636.3	641.7	799	0.038	0.073

* Significance of F-test defined as $<.05$

** $<.10$ small effect size, $.10-.25$ medium effect size, $.25>$ large effect size

Conclusions

These results indicate that eMINTS enrollment is positively associated with increased student scores on the MAP Communication Arts and Mathematics tests. However, a shift in trends for two groups of students by selected characteristics did emerge.

In previous eMINTS analyses, African-American students enrolled in eMINTS classrooms were found to have a significant increase in MAP scores compared to those enrolled in non-eMINTS classrooms. However, the 2004 cohort of third and fourth grade African-American students enrolled in eMINTS classrooms did not score significantly higher on the Communication Arts or Mathematics MAP tests than did African-American students enrolled in non-eMINTS classrooms. Similarly, MAP Mathematics test scores for fourth grade Title I students enrolled in eMINTS classrooms were not found to be statistically different than MAP Mathematic scores of students enrolled in non-eMINTS classrooms.

When comparing eMINTS enrollment to MAP Communication Arts scores, females were found to be the greatest beneficiaries of eMINTS enrollment scoring slightly more than 14 points higher on the MAP Communication Arts test than females enrolled in non-eMINTS classrooms. When comparing eMINTS enrollment to MAP Mathematics scores, non-African-American minority students were found to be the greatest beneficiaries of eMINTS enrollment scoring almost 19 points higher on the MAP Mathematics test than those non-African-American minority students enrolled in non-eMINTS classrooms.

eMINTS enrollment was found to be beneficial to students enrolled in free and reduced lunch programs as well. Students in the free and reduced lunch program enrolled in eMINTS classrooms scored significantly higher on both MAP Communication Arts and Mathematics tests than did students participating in free and reduced lunch programs that were enrolled in non-eMINTS classrooms.

There is no doubt that for the FY04 eMINTS cohort, enrollment in an eMINTS classroom is beneficial for increasing MAP scores for both the Communication Arts and Mathematics tests.

Appendix A: 3rd Grade eMINTS Enrollment and MAP Score ANOVAs

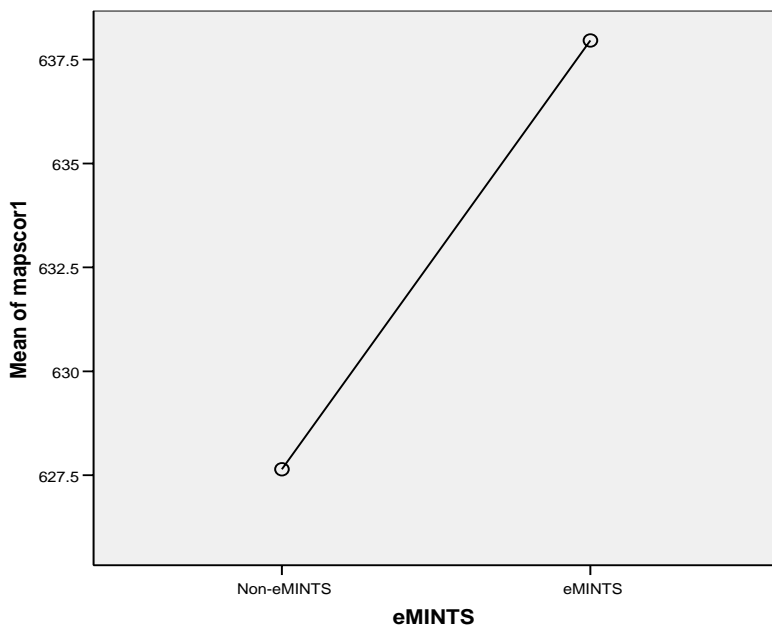
Oneway ANOVA - All Students
Descriptives

MAP_SCORE										
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		352	627.64	30.608	1.631	624.43	630.85	527	730	
eMINTS		372	637.96	28.207	1.462	635.08	640.84	528	715	
Total		724	632.94	29.829	1.109	630.77	635.12	527	730	
Model	Fixed Effects			29.399	1.093	630.80	635.09			
	Random Effects				5.161	567.37	698.52			50.837

ANOVA

MAP_SCORE					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19253.385	1	19253.385	22.276	.000
Within Groups	624029.293	722	864.306		
Total	643282.678	723			

Means Plots



Oneway ANOVA - African American Students

Descriptives

MAP_SCORE

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		78	620.13	30.476	3.451	613.26	627.00	548	730	
eMINTS		39	616.82	35.067	5.615	605.45	628.19	528	684	
Total		117	619.03	31.966	2.955	613.17	624.88	528	730	
Model	Fixed Effects			32.066	2.965	613.15	624.90			
	Random Effects				2.965(a)	581.36(a)	656.69(a)			-14.303

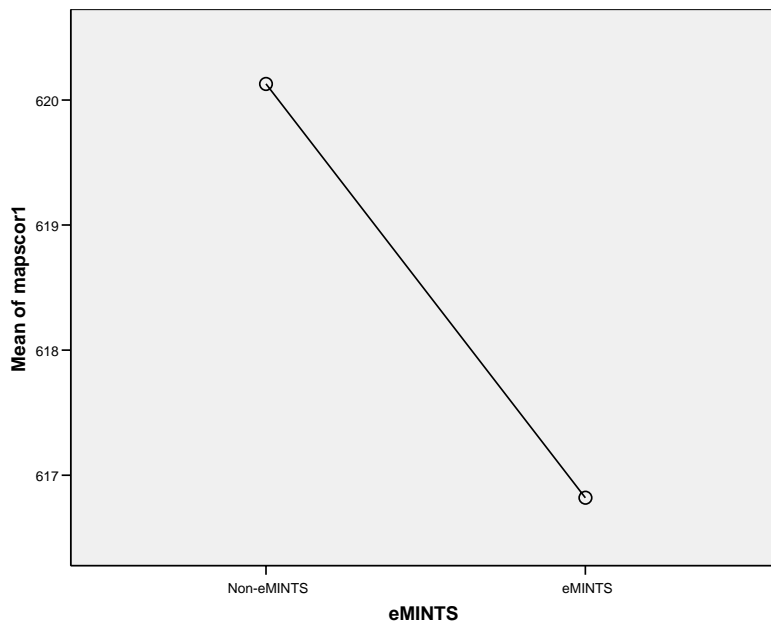
a. Warning: Between-component variance is negative. It was replaced by 0.0 in computing this random effects measure.

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	284.462	1	284.462	.277	.600
Within Groups	118246.462	115	1028.230		
Total	118530.923	116			

Means Plots



Oneway ANOVA - Female Students

Descriptives

MAP_SCORE

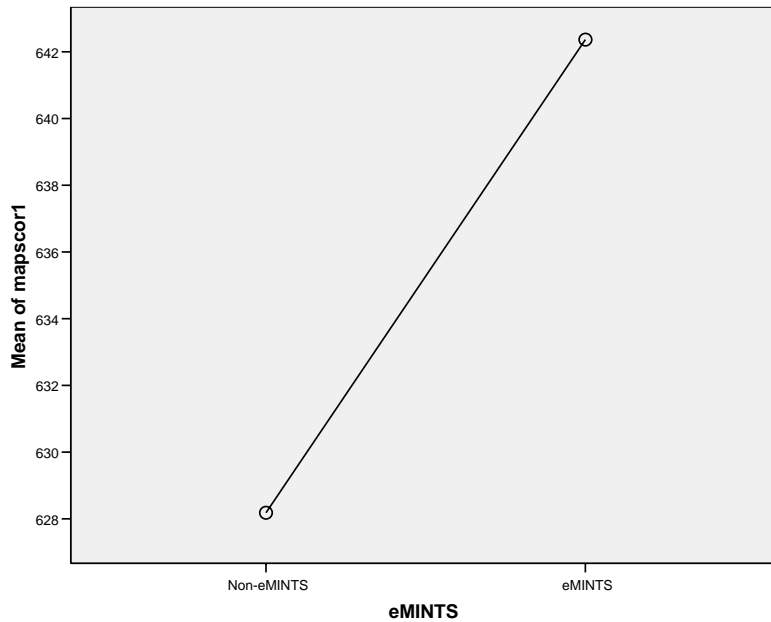
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		176	628.18	29.775	2.244	623.75	632.61	527	730	
eMINTS		189	642.37	29.232	2.126	638.17	646.56	545	715	
Total		365	635.53	30.297	1.586	632.41	638.64	527	730	
Model	Fixed Effects			29.495	1.544	632.49	638.56			
	Random Effects				7.096	545.37	725.69			95.810

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	18333.011	1	18333.011	21.074	.000
Within Groups	315791.991	363	869.950		
Total	334125.003	364			

Means Plots



Oneway ANOVA - Free and Reduced Lunch Students

Descriptives

MAP_SCORE

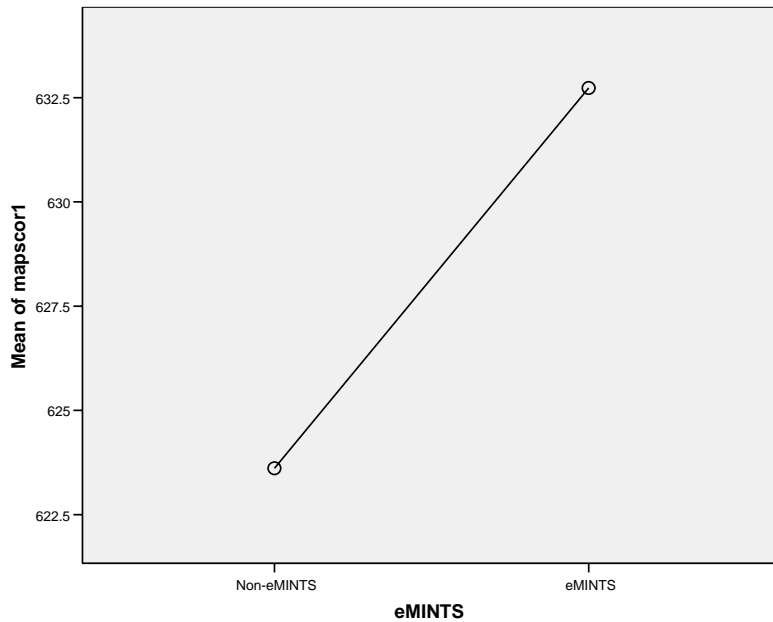
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		233	623.61	29.777	1.951	619.77	627.46	527	702	
eMINTS		208	632.73	29.373	2.037	628.72	636.75	528	706	
Total		441	627.91	29.902	1.424	625.12	630.71	527	706	
Model	Fixed Effects			29.587	1.409	625.14	630.68			
	Random Effects				4.564	569.92	685.91			37.577

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9134.566	1	9134.566	10.435	.001
Within Groups	384294.159	439	875.385		
Total	393428.726	440			

Means Plots



Oneway ANOVA - IEP Students

Descriptives

MAP_SCORE

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
					Lower Bound	Upper Bound			
Non-eMINTS	44	624.48	26.124	3.938	616.53	632.42	556	687	
eMINTS	55	626.11	25.064	3.380	619.33	632.88	559	680	
Total	99	625.38	25.422	2.555	620.31	630.45	556	687	
Model			25.540	2.567	620.29	630.48			
Fixed Effects									
Random Effects				2.567(a)	592.77(a)	658.00(a)			-12.010

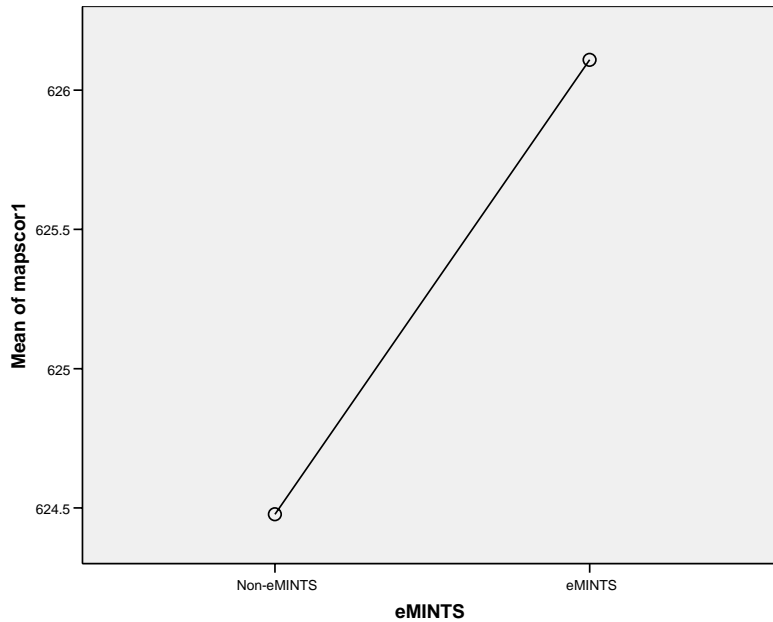
a Warning: Between-component variance is negative. It was replaced by 0.0 in computing this random effects measure.

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	65.091	1	65.091	.100	.753
Within Groups	63270.323	97	652.271		
Total	63335.414	98			

Means Plots



Oneway ANOVA - Male Students

Descriptives

MAP_SCORE

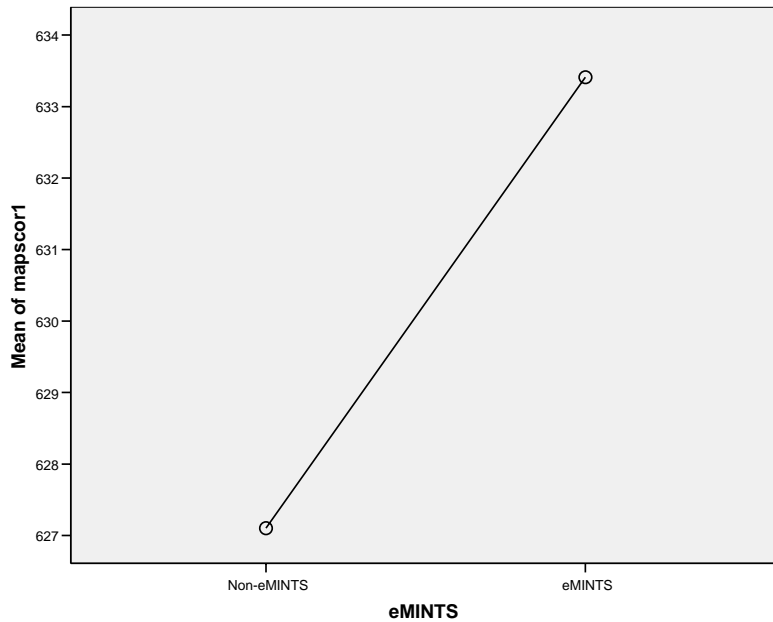
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		176	627.10	31.495	2.374	622.42	631.79	531	699	
eMINTS		183	633.41	26.425	1.953	629.56	637.26	528	706	
Total		359	630.32	29.152	1.539	627.29	633.34	528	706	
Model	Fixed Effects			29.021	1.532	627.31	633.33			
	Random Effects				3.154	590.24	670.39			15.199

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3569.378	1	3569.378	4.238	.040
Within Groups	300678.421	357	842.236		
Total	304247.799	358			

Means Plots



Oneway ANOVA - Non-African American Minority Students

Descriptives

MAP_SCORE

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		48	614.52	30.008	4.331	605.81	623.23	531	660	
eMINTS		13	619.54	24.361	6.756	604.82	634.26	570	661	
Total		61	615.59	28.781	3.685	608.22	622.96	531	661	
Model	Fixed Effects			28.949	3.706	608.17	623.01			
	Random Effects				3.706(a)	568.49(a)	662.69(a)			-28.373

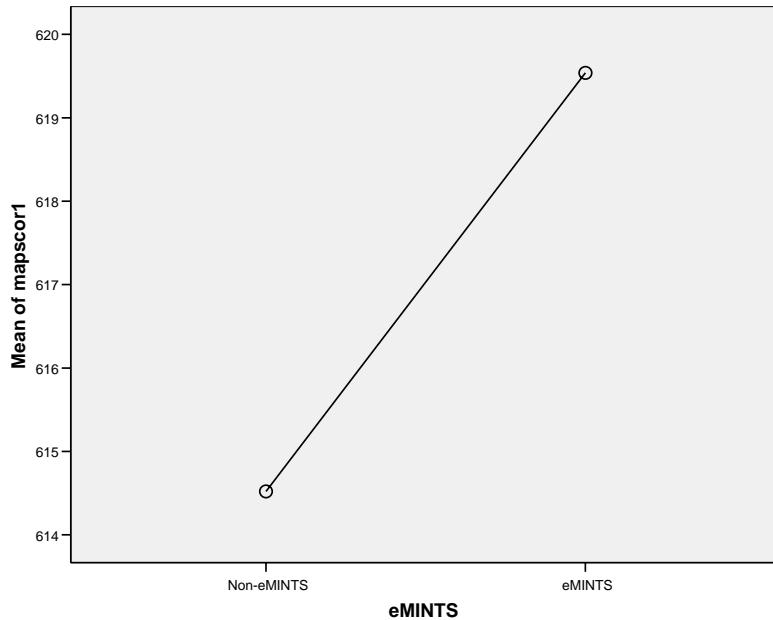
a. Warning: Between-component variance is negative. It was replaced by 0.0 in computing this random effects measure.

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	257.544	1	257.544	.307	.581
Within Groups	49443.210	59	838.021		
Total	49700.754	60			

Means Plots



Oneway ANOVA - Title I Students

Descriptives

MAP_SCORE

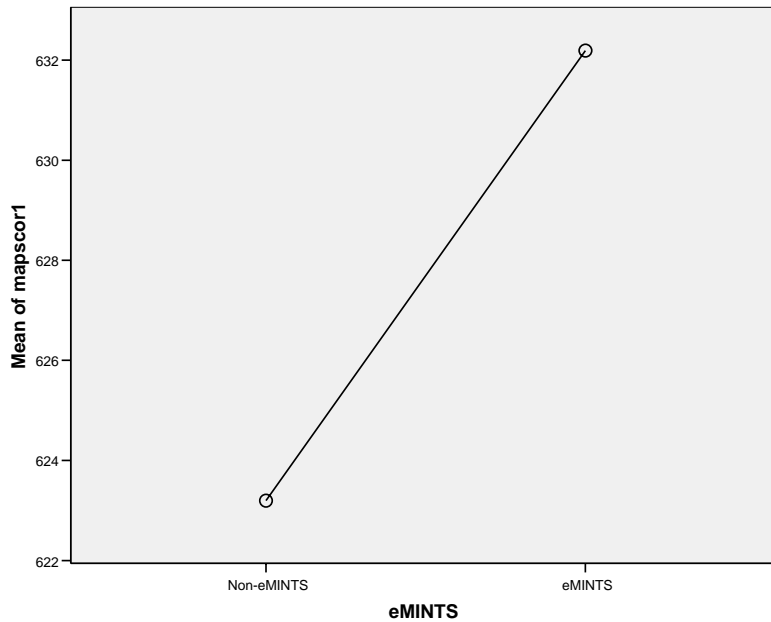
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		168	623.20	30.623	2.363	618.53	627.86	527	712	
eMINTS		194	632.19	29.120	2.091	628.07	636.31	528	715	
Total		362	628.02	30.122	1.583	624.90	631.13	527	715	
Model	Fixed Effects			29.826	1.568	624.93	631.10			
	Random Effects				4.506	570.76	685.27			35.508

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7283.439	1	7283.439	8.187	.004
Within Groups	320262.461	360	889.618		
Total	327545.901	361			

Means Plots



Oneway ANOVA - White Students

Descriptives

MAP_SCORE

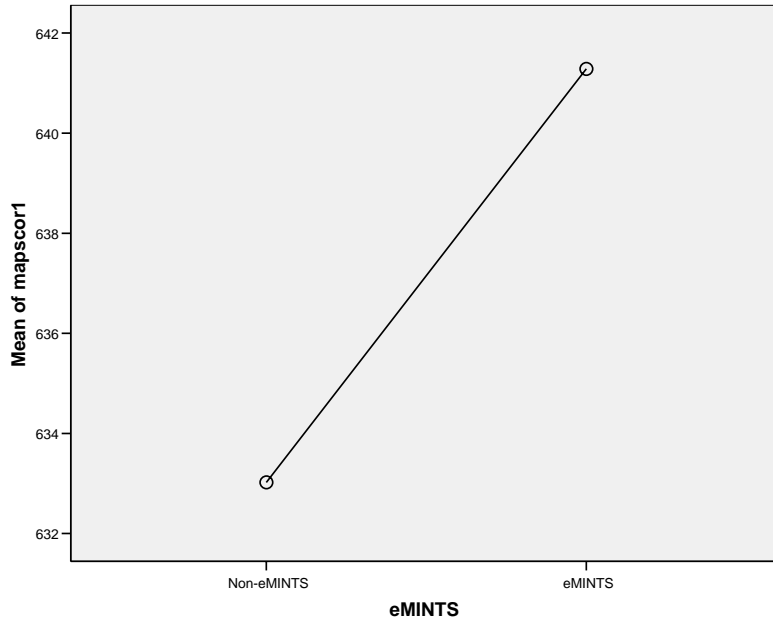
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		226	633.02	29.499	1.962	629.16	636.89	527	712	
eMINTS		320	641.28	26.019	1.455	638.42	644.15	563	715	
Total		546	637.86	27.787	1.189	635.53	640.20	527	715	
Model	Fixed Effects			27.512	1.177	635.55	640.18			
	Random Effects				4.182	584.73	691.00			31.275

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9041.959	1	9041.959	11.946	.001
Within Groups	411754.011	544	756.901		
Total	420795.971	545			

Means Plots



Appendix B: 4th Grade eMINTS Enrollment and MAP Score ANOVAs

Oneway ANOVA - All Students

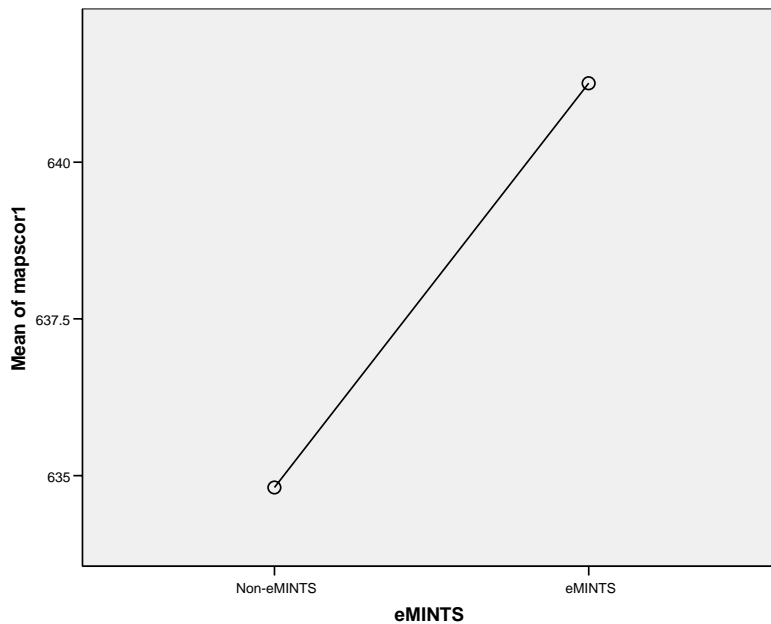
Descriptives

MAP_SCORE		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		577	634.81	36.491	1.519	631.83	637.79	482	815	
eMINTS		929	641.26	33.654	1.104	639.09	643.43	517	748	
Total		1506	638.79	34.898	.899	637.02	640.55	482	815	
Model	Fixed Effects			34.768	.896	637.03	640.55			
	Random Effects				3.297	596.90	680.68			19.092

ANOVA

MAP_SCORE					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14799.963	1	14799.963	12.243	.000
Within Groups	1818052.889	1504	1208.812		
Total	1832852.853	1505			

Means Plots



Oneway ANOVA - African-American Students

Descriptives

MAP_SCORE

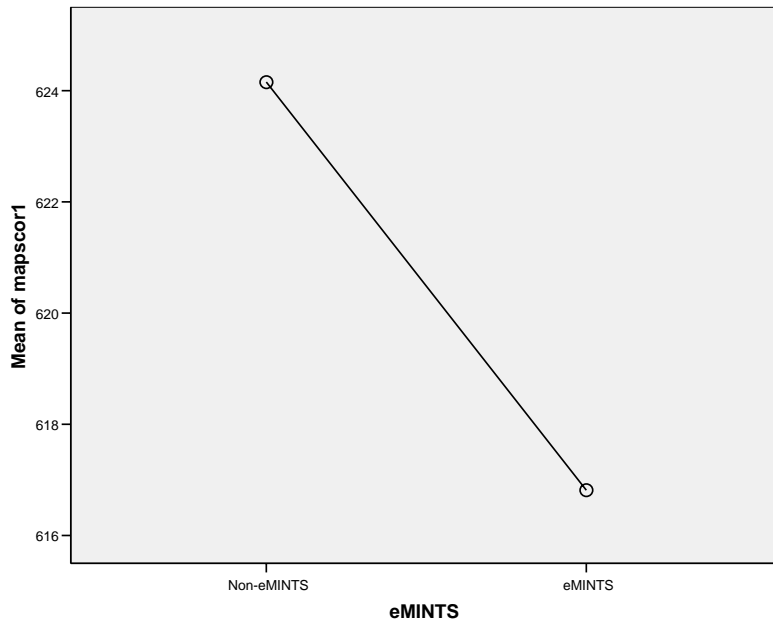
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		104	624.15	28.502	2.795	618.61	629.70	541	695	
eMINTS		54	616.81	33.745	4.592	607.60	626.03	532	698	
Total		158	621.65	30.489	2.426	616.85	626.44	532	698	
Model	Fixed Effects			30.385	2.417	616.87	626.42			
	Random Effects				3.676	574.94	668.35			13.943

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1914.465	1	1914.465	2.074	.152
Within Groups	144025.687	156	923.242		
Total	145940.152	157			

Means Plots



Oneway ANOVA - Female Students

Descriptives

MAP_SCORE

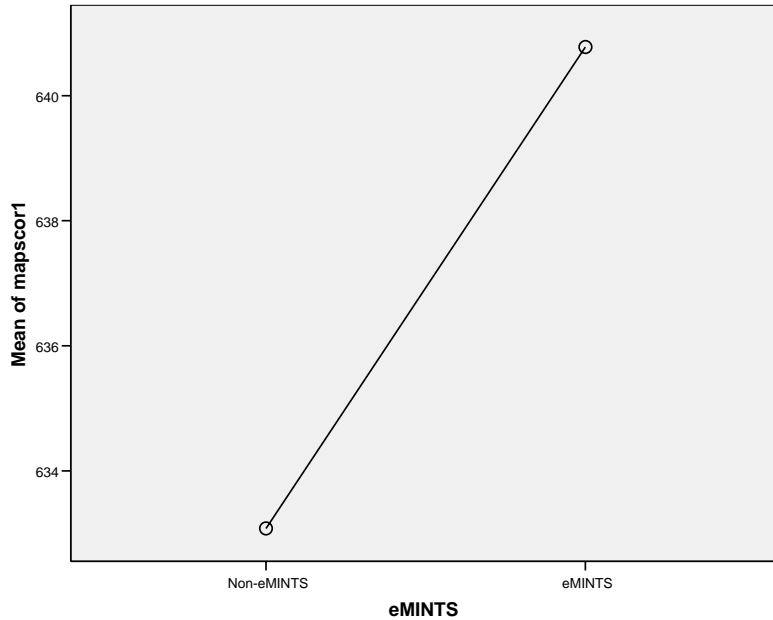
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		260	633.08	33.765	2.094	628.96	637.20	482	723	
eMINTS		445	640.78	33.196	1.574	637.68	643.87	526	729	
Total		705	637.94	33.589	1.265	635.46	640.42	482	729	
Model	Fixed Effects			33.407	1.258	635.47	640.41			
	Random Effects				3.949	587.76	688.12			26.220

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9722.098	1	9722.098	8.712	.003
Within Groups	784552.279	703	1116.006		
Total	794274.377	704			

Means Plots



Oneway ANOVA - Free and Reduced Lunch Students

Descriptives

MAP_SCORE

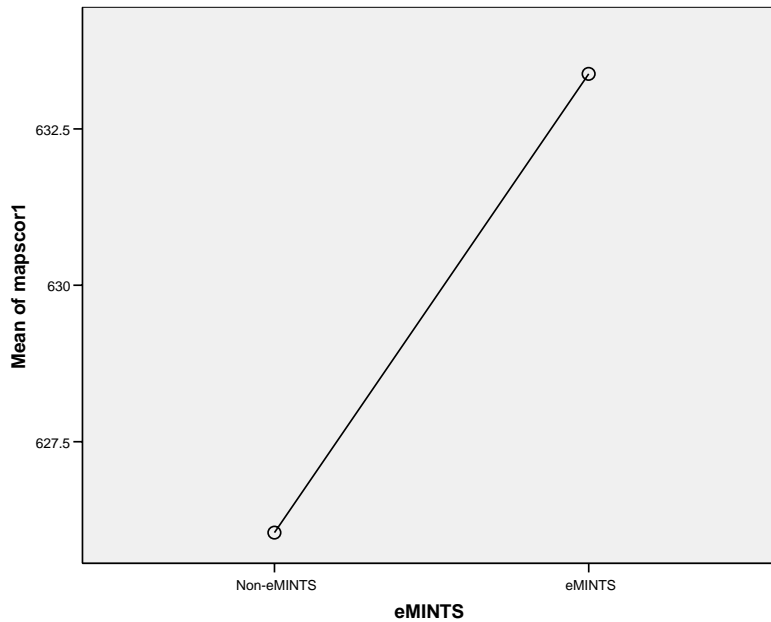
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		346	626.05	35.405	1.903	622.30	629.79	482	738	
eMINTS		465	633.38	33.979	1.576	630.28	636.48	517	748	
Total		811	630.25	34.763	1.221	627.86	632.65	482	748	
Model	Fixed Effects			34.594	1.215	627.87	632.64			
	Random Effects				3.698	583.27	677.24			23.880

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10671.800	1	10671.800	8.917	.003
Within Groups	968170.886	809	1196.750		
Total	978842.686	810			

Means Plots



Oneway ANOVA - IEP Students

Descriptives

MAP_SCORE

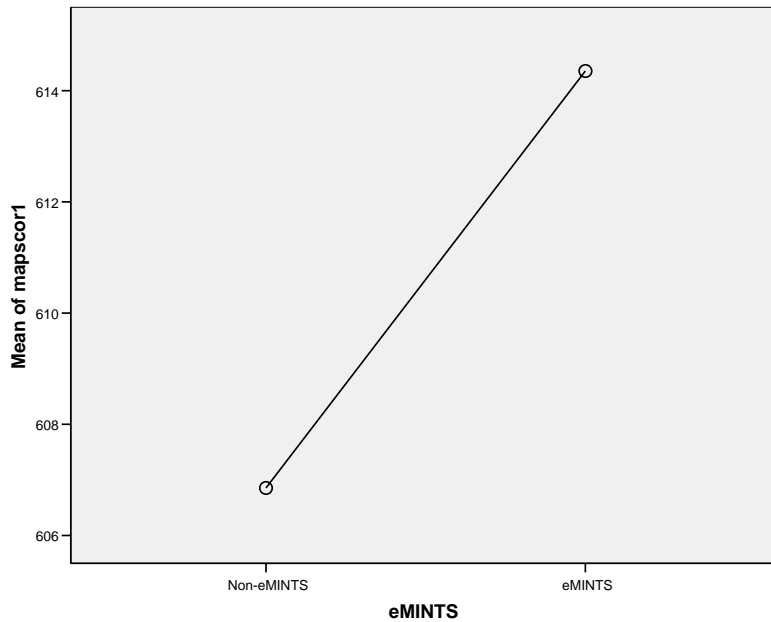
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		89	606.85	35.804	3.795	599.31	614.40	482	694	
eMINTS		113	614.35	41.286	3.884	606.66	622.05	517	695	
Total		202	611.05	39.051	2.748	605.63	616.47	482	695	
Model	Fixed Effects			38.969	2.742	605.64	616.46			
	Random Effects				3.748	563.43	658.67			12.875

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2800.563	1	2800.563	1.844	.176
Within Groups	303714.942	200	1518.575		
Total	306515.505	201			

Means Plots



Oneway ANOVA - Male Students

Descriptives

MAP_SCORE

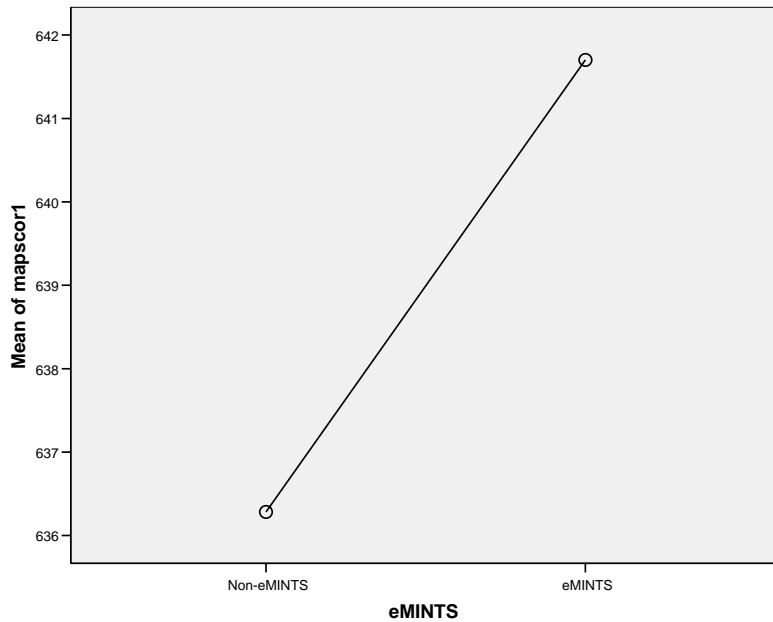
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		315	636.28	38.695	2.180	631.99	640.57	492	815	
eMINTS		484	641.70	34.099	1.550	638.66	644.75	517	748	
Total		799	639.57	36.055	1.276	637.06	642.07	492	815	
Model	Fixed Effects			35.980	1.273	637.07	642.06			
	Random Effects				2.742	604.72	674.41			11.296

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5605.289	1	5605.289	4.330	.038
Within Groups	1031747.011	797	1294.538		
Total	1037352.300	798			

Means Plots



Oneway ANOVA - Non-African-American Minority Students

Descriptives

MAP_SCORE

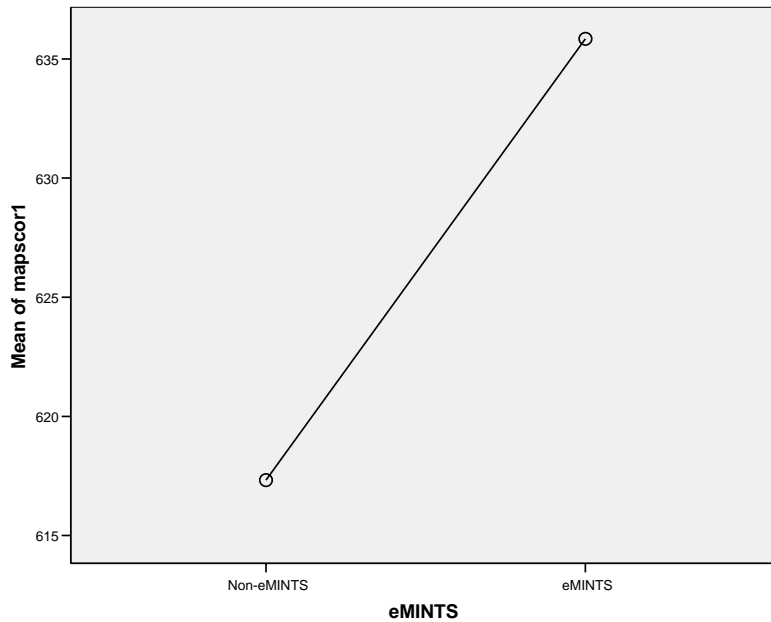
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
					Lower Bound	Upper Bound			
Non-eMINTS	62	617.32	34.974	4.442	608.44	626.20	492	675	
eMINTS	45	635.84	40.228	5.997	623.76	647.93	537	742	
Total	107	625.11	38.211	3.694	617.79	632.44	492	742	
Model	Fixed Effects		37.266	3.603	617.97	632.26			
	Random Effects			9.341	506.42	743.80			144.899

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8945.195	1	8945.195	6.441	.013
Within Groups	145819.459	105	1388.757		
Total	154764.654	106			

Means Plots



Oneway ANOVA - Title I Students

Descriptives

MAP_SCORE

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		238	636.92	34.946	2.265	632.45	641.38	557	771	
eMINTS		387	635.38	33.100	1.683	632.07	638.69	517	748	
Total		625	635.96	33.795	1.352	633.31	638.62	517	771	
Model	Fixed Effects			33.814	1.353	633.31	638.62			
	Random Effects				1.353(a)	618.78(a)	653.15(a)			-2.700

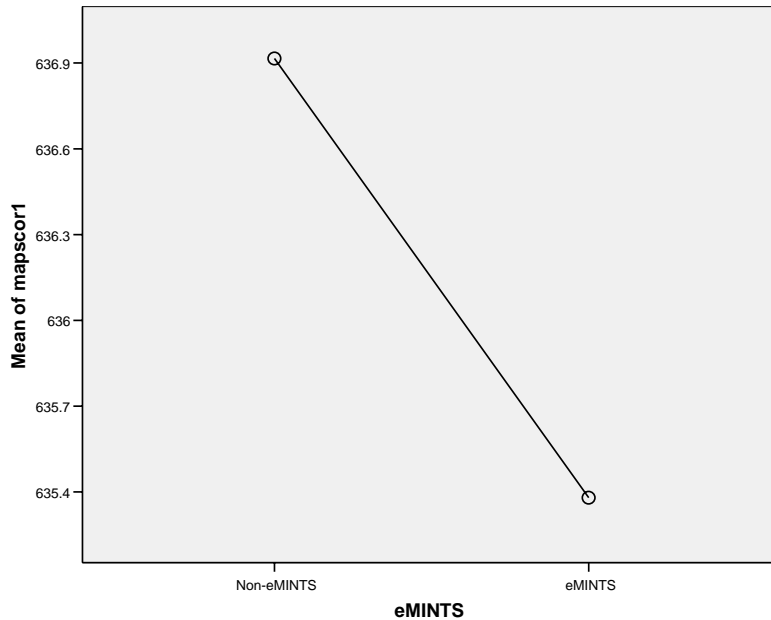
a Warning: Between-component variance is negative. It was replaced by 0.0 in computing this random effects measure.

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	347.743	1	347.743	.304	.582
Within Groups	712341.482	623	1143.405		
Total	712689.226	624			

Means Plots



Oneway ANOVA - White Students

Descriptives

MAP_SCORE

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	Between-Component Variance
						Lower Bound	Upper Bound			
Non-eMINTS		411	640.15	37.162	1.833	636.54	643.75	482	815	
eMINTS		830	643.14	32.636	1.133	640.92	645.37	517	748	
Total		1241	642.15	34.216	.971	640.25	644.06	482	815	
Model	Fixed Effects			34.200	.971	640.25	644.06			
	Random Effects				1.503	623.05	661.25			2.365

ANOVA

MAP_SCORE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2469.642	1	2469.642	2.111	.146
Within Groups	1449203.179	1239	1169.656		
Total	1451672.822	1240			

Means Plots

