

Analysis of 2006 MAP Results for eMINTS and non-eMINTS Students

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Abstract

To understand the impact of the eMINTS Comprehensive PD program on students, Education Development Center analyzed 2006 Missouri Assessment Program (MAP) data in Communication Arts and Mathematics comparing the results of students whose teachers were in the Fiscal Year 2005 (FY05) eMINTS cohort with students whose teachers did not participate in the program but who teach in the same schools and grade levels as eMINTS participants. The analyses examined the scores of students in third through sixth grade, and took into account various demographic variables, such as eligibility for Title I and free/reduced price lunch, ethnicity and gender. When the analyses controlled for the demographic variables, the program had a positive effect on the MAP scores of students in all four grades, though only the third and fifth grade Mathematics scores measured statistically significantly higher. More importantly, the program showed positive trends on MAP scores for at-risk students in all grades.

Introduction

The eMINTS National Center, located at the University of Missouri, Columbia, offers a number of professional development programs for teachers, administrators and technology coordinators. One of these programs, eMINTS Comprehensive, provides teacher participants with 225 hours of professional development over a span of two years in a wide range of instructional practices, such as the use of inquiry-based and cooperative learning strategies, techniques for effective Internet searching and using technology to support classroom community. In addition, eMINTS instructional specialists (eIS) conduct monthly classroom visits with teacher participants to help them integrate what they learn in the training into their classroom instruction, to answer technical and pedagogical questions, and to assist with lesson planning. In order for a classroom to be certified as an eMINTS Comprehensive classroom, the teacher must be provided with the required hardware and software, including an interactive whiteboard (SMART Board) and LCD projector, a teacher laptop computer, a printer, a scanner, digital camera, productivity software, one computer for every two students, and a high-speed Internet connection.

The Education Development Center (EDC) is the external evaluator for the eMINTS program. As part of the evaluation, EDC evaluators analyzed 2006 Missouri Assessment Program (MAP) data from students whose teachers were in the FY05 eMINTS cohort and students whose teachers did not participate in the program, but who teach in the same schools and grade levels as eMINTS participants. This analysis of MAP data is one aspect of a broader evaluation of eMINTS programs. In addition to this work, EDC evaluators are collecting data from observations of eMINTS trainings in order to assess the fidelity of the implementation, and will be reviewing teacher portfolios to assess whether teachers are mastering the key concepts and instructional techniques taught in the eMINTS professional development sessions.

The MAP Assessment

The MAP is suite of standardized assessments that measure student achievement in a number of different content areas. In compliance with No Child Left Behind (NCLB) requirements, all third through eighth grade students across the state take the Communication Arts and Mathematics MAP assessment. Individual districts may also choose to administer the Science and Social Studies MAP assessment. In order to understand the impact of the eMINTS Comprehensive program on student achievement, EDC evaluators analyzed the Communication Arts and Mathematics MAP scores for students in grades three to six¹ of eMINTS Comprehensive participants and non-participants who teach in the same schools and at the same grade levels as participants.

Methods

This study analyzed student data from 31 districts. We identified sixty-eight teachers who had participated in eMINTS and 115 teachers who worked in the same schools and grades as the participating eMINTS teachers but did not participate in the program (see Table 1). We analyzed the data from students in third through sixth grade. There were 3,430 student records for the Communication Arts MAP assessment, and 3,474 records for the Mathematics MAP assessment (see Table 2). Information about students' grade level, district, school, and whether their teachers had participated in eMINTS was recorded. Student demographic data were also included in the dataset, including: gender, ethnicity, if they qualify for Title I services or the Free and Reduced-price Lunch Program (FRLP), and if they have an individualized education plan (IEP).

The MAP assessments provide both raw student scores and student performance organized by achievement levels on a 4-level scale: "Below Basic," "Basic," "Proficient," and "Advanced." The analyses presented in this report used both the raw, individual students MAP scores and—where appropriate—student scores organized by achievement levels. It is worth noting the value of analyzing the raw scores as well as scaled scores. A student who scored at the bottom of the "Basic" threshold would appear to be performing at the same level as a student at the top of that threshold. Looking at raw scores would reveal the difference between these students in a way that seeing both identified as "Basic" on a single assessment would not.

Table 1. Distribution of eMINTS and non-eMINTS Classrooms by Grade Level.

Grade Level	Classroom Type		Total
	Non-eMINTS	eMINTS	
3 rd	38	15	53
4 th	46	31	77
5 th	23	10	33
6 th	8	8	16
7 th	0	2	2
8 th	0	2	2
Total	115	68	183

¹ Although we received MAP scores for 7th and 8th graders, there were no non-eMINTS students included in the dataset, so these scores were not included in the analysis.

Table 2. Distribution of Teachers and Students by eMINTS Status and MAP Test: 3rd through 6th Grade.

	Number of Teachers	Number of Students
	<i>Communication Arts</i>	
Non-eMINTS Classroom	111	2248
eMINTS Classroom	53	1182
Total	171	3430

	<i>Mathematics</i>	
Non-eMINTS Classroom	111	2262
eMINTS Classroom	64	1212
Total	175	3474

Analyses

EDC evaluators performed multiple statistical analyses best described as three sets. The first set examined the differences between the students of eMINTS program participants and non-participants at each grade level. The second set sought to determine whether there were differences in student outcomes associated with demographic variables such as students’ eligibility for Title I or FRLP, their race/ethnicity, their gender and whether they have an IEP. Finally, the third set controlled for all of these demographic factors to determine what the impact of the program alone was on student outcomes.

In terms of methods used for each set of analyses, the first set—effect of eMINTS on students’ performance levels—was tested using chi-square analysis, which looks for differences in groups when the outcome variable is categorical. In this case, the analysis tested whether eMINTS and non-eMINTS students in grades three to six performed differently at the four MAP achievement levels. The second set of analyses— parsing the populations of students by demographic variables to discover the impact of eMINTS on more specific populations—included two-way ANOVAs, which examine any differences in students’ mean scores of two or more groups. For example, a two-way ANOVA was used to look at any differences in the MAP test scores of students who did and did not qualify for Title I services, as well as differences in MAP scores for students who were and were not in eMINTS classrooms for each of these groups. For the third set of analyses— to determine the effect of eMINTS after statistically adjusting for demographic and student variables—one hierarchical linear regression was run for each grade level on each MAP test accordingly. Regression is able to show the predicted impact of several variables on an outcome measures. Regression produces Beta weights, which indicate how much a student’s score will increase or decrease based on a given variable, such as being eligible for Title I services or participating in eMINTS. In this study, regression was used to analyze how being in an eMINTS classroom impacts students’ MAP scores, after all demographic differences are taken into consideration.

Results

Many factors contribute to student performance on achievement tests. Therefore, it is unusual for any program, and particularly one that is designed to address a wide range of instructional practices rather than targeting the specific skills that are tested in achievement tests, to show any impact on student test scores. Nonetheless, when we controlled for demographic variables, we

identified a small but positive trend in MAP scores among the students of program participants in all four grades we examined, and in two grades statistically significant positive effects. We also identified positive trends for program participation among the most economically disadvantaged students (those eligible for Title I and FRL).

The following sections describe these results in more detail.

First Set of Analyses: Basic Analyses on Performance Levels

Our first set of analyses was conducted to identify any differences between the test scores of students from eMINTS classrooms and non-eMINTS classrooms. An analysis was performed for each grade level (third through sixth) for both the Communication Arts and Mathematics portions of the MAP.

This analysis compared the percentage of eMINTS and non-eMINTS students who fell into each of the four MAP achievement levels. A summary of the chi-square analysis is shown in Table 4 (Appendix A). The only statistically significant difference was found among fourth grade Mathematics scores. There was a higher percentage of eMINTS students scoring both Basic and Proficient and slightly lower percentage scoring Below Basic and Advanced. Thus no clear pattern of improvement or regression emerged with this population. No other overall patterns were found with these analyses. The one statistically significant result ($p < .01$) and the one result approaching statistical significance ($p < .10$) can be found in Appendix A, Figures 1 and 2.

Second Set: Demographic Analysis on Performance Levels

Since the effects of eMINTS may differ on students of various demographic backgrounds, and the range of demographics was so large, the next step was to further analyze the effects of eMINTS on specific populations. Please see Table 5-12 in Appendix B for means and standard deviations for all analyses described in this section.

Free and Reduced Lunch Program (FRLP): Mathematics

Students who qualified for FRLP scored significantly lower on the Mathematics test than the other students in third, fourth, fifth ($p < .001$), and sixth grade ($p < .05$). The effect of being in eMINTS on Mathematics scores for students in the FRLP was positive and statistically significant for fifth grade students ($p < .01$), showed a marginal effect for fourth grade students ($p < .08$), and showed a similar, non-significant trend for sixth grade students (see Appendix C, Figures 3-5). The mean plots and follow-up analysis show several positive trends for eMINTS students, including significantly higher scores for fourth grade students in the FRLP and fifth grade students not in the FRLP.

Free and Reduced Lunch Program (FRLP): Communication Arts

Students who qualified for the FRLP scored significantly lower on the Communication Arts test than other students in third, fourth, fifth, and sixth grade ($p < .001$). No overall statistically significant effects for eMINTS were found for these groups. The mean plots, however, indicate a trend that eMINTS may be specifically helping students that qualify for the FRLP. Although not significant, the scores eMINTS students in the FRLP are noticeably higher in the fourth, fifth, and sixth grade (see Appendix C, Figures 6-8).

Title I: Mathematics

Students who qualified for Title I services scored significantly lower on the Mathematics test than other students in third, fourth, and fifth grade ($p < .001$), and marginally worse in sixth grade ($p < .06$). The effect of being in eMINTS on Mathematics scores for Title I students was positive and statistically significant for fourth, fifth, and sixth grade students ($p < .01$) (see Appendix C, Figures 9-11). The mean plots and follow-up analysis show several specific positive trends for eMINTS students, including significantly higher scores for Title I fourth grade students, non-Title I fifth grade students ($p < .01$), and Title I sixth grade students ($p < .05$).

Title I: Communication Arts

Students who qualified for Title I services scored significantly lower on the Communication Arts test than other students in third, fourth, fifth ($p < .001$), and sixth grade ($p < .05$). No overall statistically significant effects for eMINTS were found. The mean plots, however, show some positive, although not significant trends for Title I students in eMINTS, with third grade being the exception (see Appendix C, Figures 12-14).

Individualized Education Programs (IEP)

Students with IEPs scored significantly lower on the Communication Arts and Mathematics tests than other students in third, fourth, fifth, and sixth grade ($p < .001$). No overall significant effects of eMINTS were found among these groups.

Ethnicity

Our analysis revealed consistent differences across ethnicities in each grade for both the Mathematics and Communication Arts tests, but revealed no significant effects for participating in eMINTS.

Gender: Communication Arts

Female students scored significantly higher on the Communication Arts test than males in third, fourth ($p < .001$), and sixth grade ($p < .01$). There were no significant effects for eMINTS participation.

Gender: Mathematics

No differences between gender or eMINTS participants were found in this analysis.

Third Set: Overall Regression Analysis

One reason few overall effects were seen in the first set of analyses was the presence of confounding variables. For examples, whether a student was Title I eligible, FRLP eligible, or even male or female clearly has an effect on student test performance. Thus hierarchical linear regression was performed to analyze the effect of eMINTS after the child and demographic variables were taken into consideration.

After controlling for each of the demographic variables, the predicted impact of being in an eMINTS classroom was determined (see Table 3). The effect of eMINTS was positive for Mathematics in third grade and for both Communication Arts and Mathematics for students in the fourth, fifth, and sixth grade, predicting an increase in MAP scores of 1.5 to 7 points for eMINTS students; however, the only statistically significant effect was on fifth grade Communication Arts scores and third grade Mathematics scores, with Betas that indicated a 6.5 and 7 point increase, respectively. The sixth grade Communication Arts scores showed a marginally significant effect. The overall predicted impact on third graders was found to be negative for Communication Arts, although not statistically significant.

Table 3. Predicted number of points added (Beta) to a students' MAP score if he or she were in an eMINTS classroom.

	Beta	
	Communication Arts	Mathematics
3 rd	-2.3	+7.0**
4 th	+1.5	+2.1
5 th	+6.5**	+5.4
6 th	+5.5*	+4.9

*p < .10, **p < .05

Conclusion

The analyses of the 2006 MAP Communication Arts and Mathematics data presented in this report indicate that the eMINTS program is having a small but definite impact on student outcomes in the four grades that were examined. While there were little or no differences evident between students in eMINTS and non-eMINTS classrooms when the basic analyses were conducted, once regressions were done that controlled for the many demographic variables that can affect student achievement, the analyses suggested that students in eMINTS classrooms in grades three through six perform slightly better on the MAP assessments than students in non-eMINTS classrooms, and in two cases (third and fifth grade Mathematics) perform significantly better on the MAP assessment.

There were no significant differences found in achievement between eMINTS and non-eMINTS students based on gender, race/ethnicity or IEP. However, positive trends in student performance were found for eMINTS students who qualified for Title I services and FRLP. *This finding suggests that the program is having a greater impact on the highest-need students.* It is important to note that eMINTS is now funded in Missouri primarily through the Title IID grant program, which only provides funds for schools that meet federal poverty criteria. Because of this, a large percentage of the students in eMINTS classrooms come from economically disadvantaged backgrounds. The results from these analyses suggest that the program may be particularly appropriate for the specific student population that it is serving.

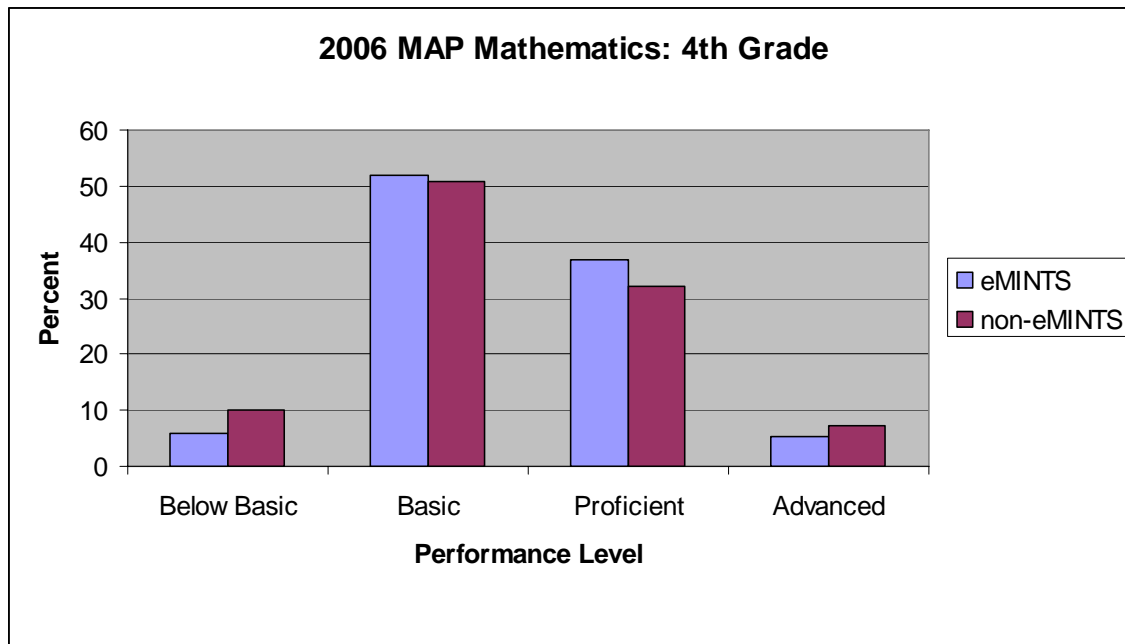
As noted above, because so many factors contribute to student performance on achievement tests, it is very difficult for any single program to have an impact on these outcomes. The eMINTS Comprehensive program is not specifically designed to improve Communication Arts or Mathematics scores. Rather, it is designed to support teachers in changing their classroom environments to be more inquiry-based, cooperative and technologically enhanced. The fact that the program led to even relatively small effects in the MAP performance of students of program participants is noteworthy. The fact that the effects were most dramatic among the highest-need students suggests that the kind of environments that eMINTS teachers create in their classrooms may be particularly effective for these students.

APPENDIX A

Table 4. The Chi-square (X^2) values demonstrate the differences in eMINTS and non-eMINTS students which proficiency groups they scored.

	Communication Arts		Mathematics	
	X^2	<i>p-value</i>	X^2	<i>p-value</i>
3 rd	4.8	ns	6.7	< .10
4 th	1.8	ns	11.6	< .01
5 th	2.5	ns	0.2	ns
6 th	2.6	ns	1.3	ns

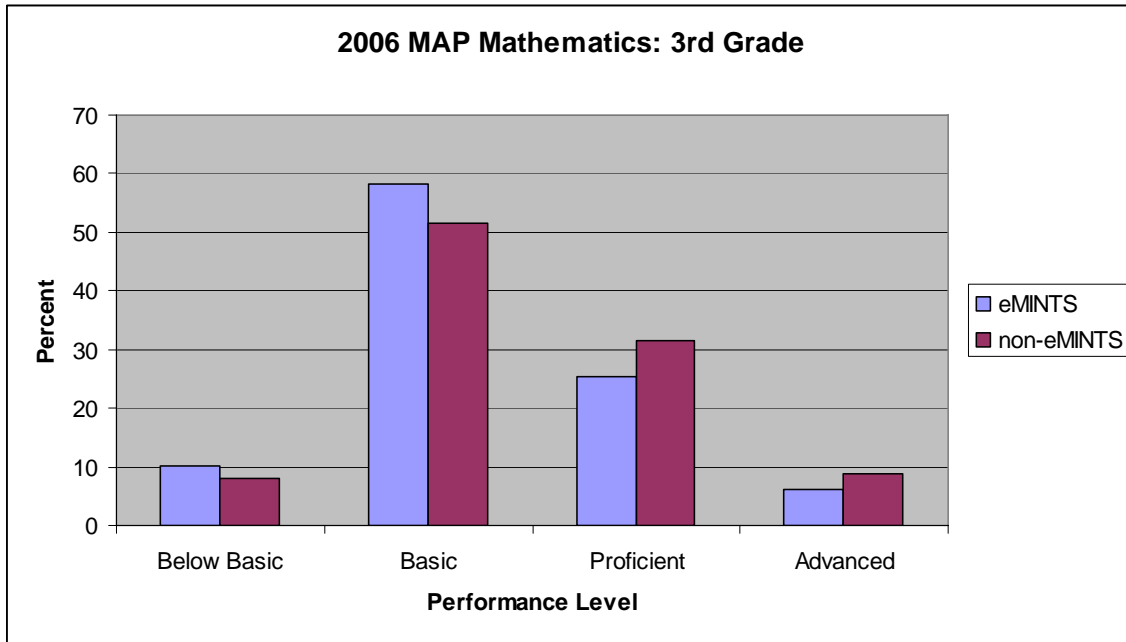
Figure 1. Shows the percentage of 4th-grade students placing in each performance level on the 2006 MAP Mathematics.



Level	eMINTS (%)	Non-eMINTS (%)
Below Basic	6.0	10.0
Basic	51.9	50.7
Proficient	36.7	32.0
Advanced	5.3	7.2

* $X^2(3) = 11.6, p < .01$

Figure 2. Percentage of 3rd grade students placing in each performance level on the 2006 MAP Mathematics.



Level	eMINTS (%)	Non-eMINTS (%)
Below Basic	10.1	8.0
Basic	58.4	51.5
Proficient	25.3	31.5
Advanced	6.2	8.9

* $\chi^2(3) = 6.7, p < .10$

APPENDIX B

Table 5. Means for 3rd grade MAP Mathematics tests.

<i>Students</i>	Overall MAP score			Non-eMINTS MAP score			eMINTS MAP score		
	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>
ALL	619.5	42.6	966	618.4	38.9	677	621.9	50.2	289
Reduced Lunch	604.0	39.3	427	601.6	35.0	260	607.9	45.1	167
Non-Red. Lunch	631.7	41.1	539	629.0	37.4	417	641.0	50.6	122
Title I	604.0	38.2	400	602.0	33.8	249	607.2	44.3	151
Non-Title I	630.4	42.2	566	628.0	38.5	428	637.9	51.4	138
IEP	592.1	46.3	130	587.7	45.1	83	599.8	47.7	47
Non-IEP	623.7	40.4	836	622.7	35.9	594	626.1	49.6	242
Caucasian	624.1	43.0	776	623.8	38.4	523	624.7	51.2	253
African-American	598.0	34.5	167	597.8	33.8	136	599.1	38.0	31
Hispanic	603.5	36.6	13	603.0	40.6	10	605.3	24.7	3
Asian-American	640.9	21.6	7	640.9	21.6	7	n/a	n/a	0
Native/Alaskan	627.0	20.9	3	603.0	n/a	1	639.0	2.8	2
Male	618.9	47.0	508	616.9	42.6	350	623.4	55.4	158
Female	620.0	37.1	457	619.9	34.4	326	620.1	43.2	131

Table 6. Means for 4th grade MAP Mathematics tests.

<i>Students</i>	Overall MAP score			Non-eMINTS MAP score			eMINTS MAP score		
	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>
ALL	640.6	35.36	1503	639.5	36.5	890	642.2	33.6	613
Reduced Lunch	635.3	35.0	950	632.3	35.1	521	638.9	34.6	429
Non-Red. Lunch	649.8	34.1	553	649.7	36.0	369	650.0	30.0	184
Title I	636.1	35.0	880	633.2	35.3	469	639.5	34.4	411
Non-Title I	647.0	34.9	623	646.6	36.5	421	647.7	31.4	202
IEP	615.0	40.5	274	615.7	41.7	163	613.9	38.9	111
Non-IEP	646.3	31.4	1229	644.8	33.0	727	648.5	28.8	502
Caucasian	643.0	34.1	1310	643.0	34.9	743	643.0	33.0	567
African-American	617.8	38.0	145	614.8	37.2	118	631.0	39.5	27
Hispanic	638.3	35.3	29	644.8	28.1	17	629.0	43.2	12
Asian-American	652.6	36.7	11	647.4	38.8	8	666.7	32.6	3
Native/Alaskan	659.4	41.6	8	680.8	35.8	4	638.0	39.1	4
Male	640.0	34.5	787	639.0	35.4	471	641.4	33.2	316
Female	641.3	36.3	715	640.1	37.8	418	643.1	34.1	297

Table 7. Means for 5th grade MAP Mathematics tests.

<i>Students</i>	Overall MAP score			Non-eMINTS MAP score			eMINTS MAP score		
	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>
ALL	659.9	36.4	562	659.2	36.5	429	662.2	36.3	133
Reduced Lunch	650.4	34.0	242	648.5	34.2	153	653.6	33.6	89
Non-Red. Lunch	667.1	36.6	320	665.1	36.4	276	679.6	35.7	44
Title I	653.0	33.2	199	653.7	33.7	115	652.2	32.7	84
Non-Title I	663.7	37.6	363	661.2	37.3	314	679.4	36.1	49
IEP	631.2	39.1	86	629.7	37.4	66	636.0	45.0	20
Non-IEP	665.1	33.4	476	664.6	33.7	363	666.8	32.7	113
Caucasian	662.4	35.9	494	662.1	36.1	365	663.2	35.5	129
African-American	636.2	35.2	51	636.9	43.0	47	628.5	52.9	4
Hispanic	652.6	21.0	8	652.6	21.0	8	n/a	n/a	0
Asian-American	675.1	20.6	7	675.1	20.6	7	n/a	n/a	0
Native/Alaskan	673.0	n/a	1	673.0	n/a	1	n/a	n/a	0
Male	661.7	37.3	297	659.8	37.1	223	667.4	37.7	74
Female	657.9	35.4	265	658.6	35.9	206	655.6	33.8	59

Table 8. Means for 6th grade MAP Mathematics tests.

<i>Students</i>	Overall MAP score			Non-eMINTS MAP score			eMINTS MAP score		
	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>
ALL	668.3	34.0	401	666.5	32.4	234	670.9	36.1	167
Reduced Lunch	653.0	35.1	62	648.9	31.2	31	657.0	38.6	31
Non-Red. Lunch	671.2	33.1	339	669.2	31.8	203	674.1	34.9	136
Title I	657.0	29.3	26	643.7	28.1	12	668.4	26.2	14
Non-Title I	669.1	34.2	375	667.7	32.2	222	671.1	36.9	153
IEP	642.3	39.5	55	642.0	33.6	28	642.5	45.4	27
Non-IEP	672.5	31.2	346	669.8	30.9	206	676.4	31.4	140
Caucasian	671.9	33.2	342	670.6	30.9	196	673.7	36.2	146
African-American	646.3	30.1	52	646.9	32.5	35	645.1	25.3	17
Hispanic	665.3	43.1	4	636.5	31.8	2	694.0	35.4	2
Asian-American	690.0	n/a	1	n/a	n/a	0	690.0	n/a	1
Native/Alaskan	621.5	21.9	2	606.0	n/a	1	637.0	n/a	1
Male	667.5	33.6	200	667.7	34.7	114	671.1	34.4	87
Female	669.2	34.5	201	665.4	30.2	120	670.7	38.1	80

Table 9. Means for 3rd grade MAP Communication Arts tests.

<i>Students</i>	Overall MAP score			Non-eMINTS MAP score			eMINTS MAP score		
	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>
ALL	638.6	37.3	970	639.1	35.7	681	637.5	41.0	289
Reduced Lunch	628.6	38.1	464	626.9	35.4	288	631.4	42.1	175
Non-Red. Lunch	647.8	34.1	506	648.1	33.1	393	646.9	37.5	113
Title I	624.9	34.8	405	623.5	33.5	254	627.3	36.8	151
Non-Title I	648.5	36.0	565	648.5	33.6	427	648.6	42.6	138
IEP	606.1	44.3	128	604.0	40.7	82	610.0	50.3	46
Non-IEP	643.6	33.5	842	644.0	32.1	599	642.7	36.9	243
Caucasian	642.4	37.6	771	644.0	35.1	521	639.0	42.3	250
African-American	622.9	32.9	177	622.1	33.3	143	626.5	31.4	34
Hispanic	634.5	29.6	13	634.1	35.3	9	635.3	13.3	4
Asian-American	639.7	22.2	7	639.7	22.2	7	n/a	n/a	0
Native/Alaskan	621.5	17.7	2	609.0	n/a	1	634.0	n/a	1
Male	632.6	40.9	514	633.3	39.0	355	631.0	44.7	159
Female	645.4	31.6	455	645.5	30.4	325	645.3	34.5	130

Table 10. Means for 4th grade MAP Communication Arts tests.

<i>Students</i>	Overall MAP score			Non-eMINTS MAP score			eMINTS MAP score		
	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>
ALL	650.6	37.7	1460	650.0	37.9	874	651.5	37.4	586
Reduced Lunch	641.5	38.6	791	639.8	38.0	457	643.9	39.2	334
Non-Red. Lunch	661.2	33.7	669	661.1	34.5	417	661.5	32.4	252
Title I	645.2	38.2	846	643.5	38.0	467	647.3	38.4	379
Non-Title I	657.9	35.7	614	657.4	36.4	407	659.0	34.5	207
IEP	616.8	45.9	257	616.7	45.4	156	616.8	46.8	101
Non-IEP	657.8	31.3	1203	657.2	31.8	718	658.7	30.6	485
Caucasian	652.7	36.6	1265	652.9	36.3	726	652.4	36.8	539
African-American	631.9	40.8	147	629.5	39.0	119	642.0	47.2	28
Hispanic	640.0	39.0	29	646.1	39.2	17	631.5	38.8	12
Asian-American	670.1	44.1	11	671.0	49.2	8	667.7	35.5	3
Native/Alaskan	667.4	39.1	8	696.3	20.2	4	638.5	30.6	4
Male	644.0	37.4	766	643.9	36.9	458	644.0	38.2	308
Female	657.9	36.7	693	656.7	37.9	415	659.7	34.8	278

Table 11. Means for 5th grade MAP Communication Arts tests.

<i>Students</i>	Overall MAP score			Non-eMINTS MAP score			eMINTS MAP score		
	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>
ALL	664.9	35.5	557	665.0	35.6	427	664.6	35.3	130
Reduced Lunch	655.3	33.8	214	653.0	33.9	139	659.4	33.2	75
Non-Red. Lunch	670.9	35.3	343	670.8	35.0	288	671.7	37.1	55
Title I	657.7	32.5	193	657.5	32.7	112	657.9	32.4	81
Non-Title I	668.7	36.5	364	667.7	36.3	315	675.7	37.5	49
IEP	625.1	44.6	85	624.1	45.4	65	628.6	43.0	20
Non-IEP	672.1	28.2	472	672.3	27.8	362	671.1	29.6	110
Caucasian	665.8	35.9	492	665.9	36.3	365	665.3	35.1	127
African-American	653.1	31.2	50	654.4	30.7	47	634.0	39.3	3
Hispanic	660.4	21.9	8	660.4	21.9	8	n/a	n/a	0
Asian-American	698.2	16.5	6	698.2	16.5	6	n/a	n/a	0
Native/Alaskan	667.0	n/a	1	667.0	n/a	1	n/a	n/a	0
Male	662.4	38.2	294	661.3	38.2	223	665.9	37.8	71
Female	667.6	32.1	262	669.0	32.0	203	663.0	32.3	59

Table 12. Means for 6th grade MAP Communication Arts tests.

<i>Students</i>	Overall MAP score			Non-eMINTS MAP score			eMINTS MAP score		
	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>
ALL	667.0	32.1	395	665.5	32.1	231	669.0	32.1	164
Reduced Lunch	659.2	32.1	172	655.7	33.0	94	663.4	30.7	78
Non-Red. Lunch	673.0	30.8	223	672.2	29.7	137	674.2	32.7	86
Title I	650.2	19.6	21	646.5	9.7	10	653.6	25.6	11
Non-Title I	667.9	32.4	374	666.4	32.5	221	670.2	32.3	153
IEP	630.5	40.9	53	627.0	42.7	28	634.4	39.2	25
Non-IEP	682.6	26.4	342	670.8	26.3	203	675.3	26.3	139
Caucasian	669.3	31.9	336	668.2	31.4	193	670.9	32.5	143
African-American	653.8	30.5	52	653.9	32.5	35	653.6	27.0	17
Hispanic	661.8	28.3	4	640.0	18.4	2	683.5	13.4	2
Asian-American	676.0	n/a	1	n/a	n/a	0	676.0	n/a	1
Native/Alaskan	622.5	24.7	2	605.0	n/a	1	640	n/a	1
Male	662.4	31.5	197	659.7	32.5	113	666.0	30.0	84
Female	671.5	32.0	198	671.0	30.7	118	672.3	34.0	80

APPENDIX C

Figure 3. Mean Plots of Mathematics MAP Scores for 4th Grade Students Separated by eMINTS Participation and Free and Reduced Lunch Program Status.

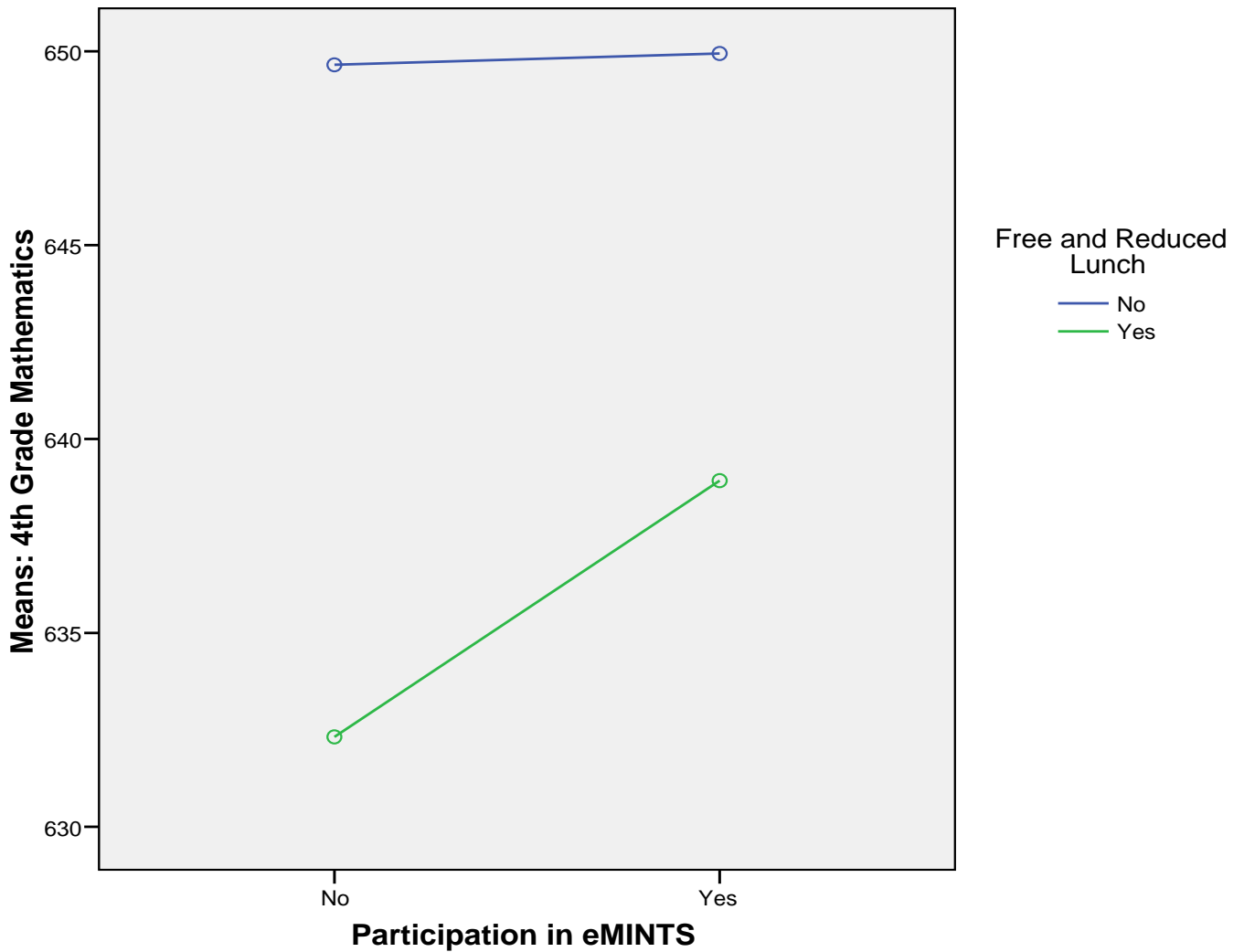


Figure 4. Mean Plots of Mathematics MAP Scores for 5th Grade Students Separated by eMINTS Participation and Free and Reduced Lunch Program Status.

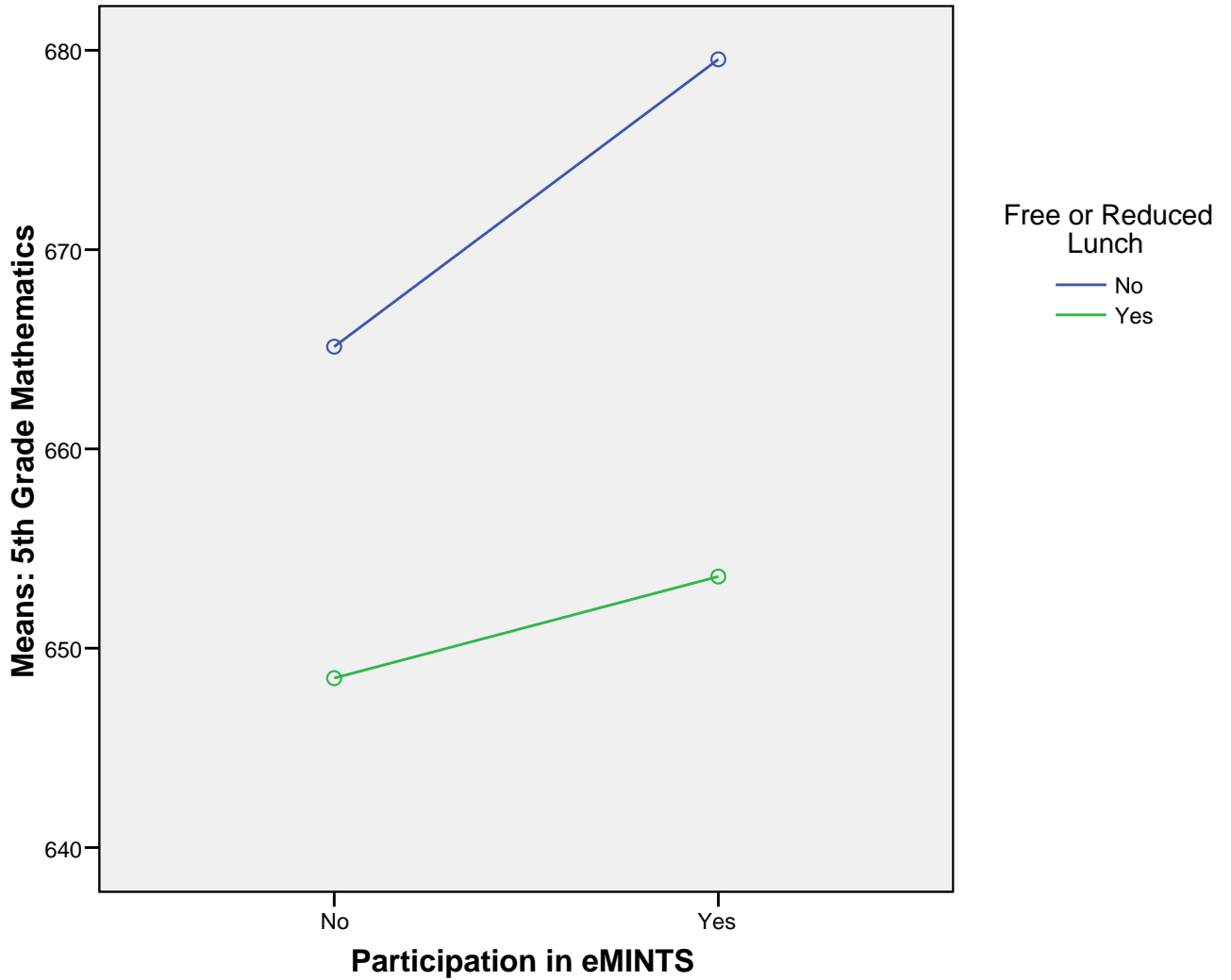


Figure 5. Mean Plots of Mathematics MAP Scores for 6th Grade Students Separated by eMINTS Participation and Free and Reduced Lunch Program Status.

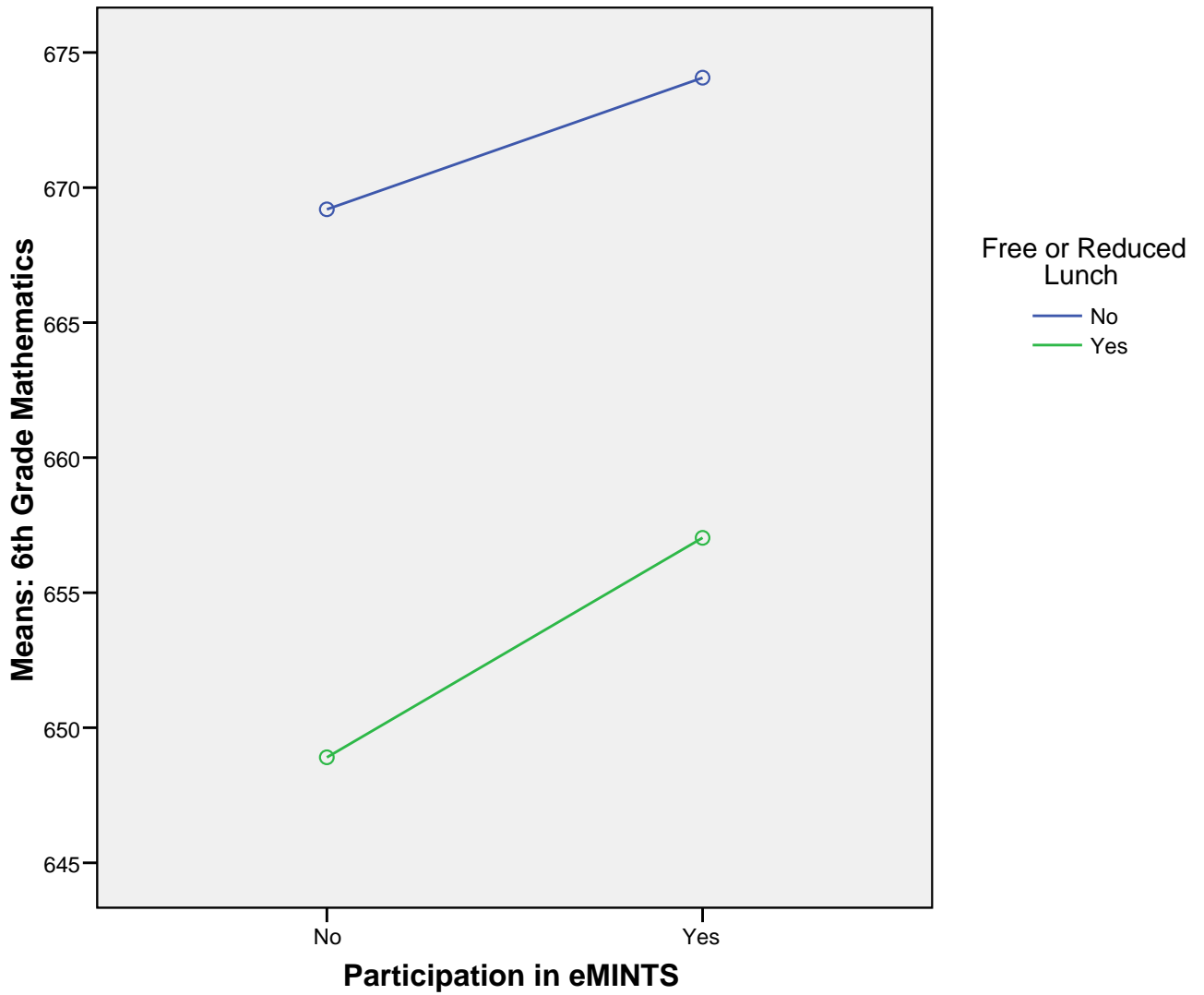


Figure 6. Mean Plots of Communication Arts MAP Scores for 4th Grade Students Separated by eMINTS Participation and Free or Reduced Lunch Program Status.

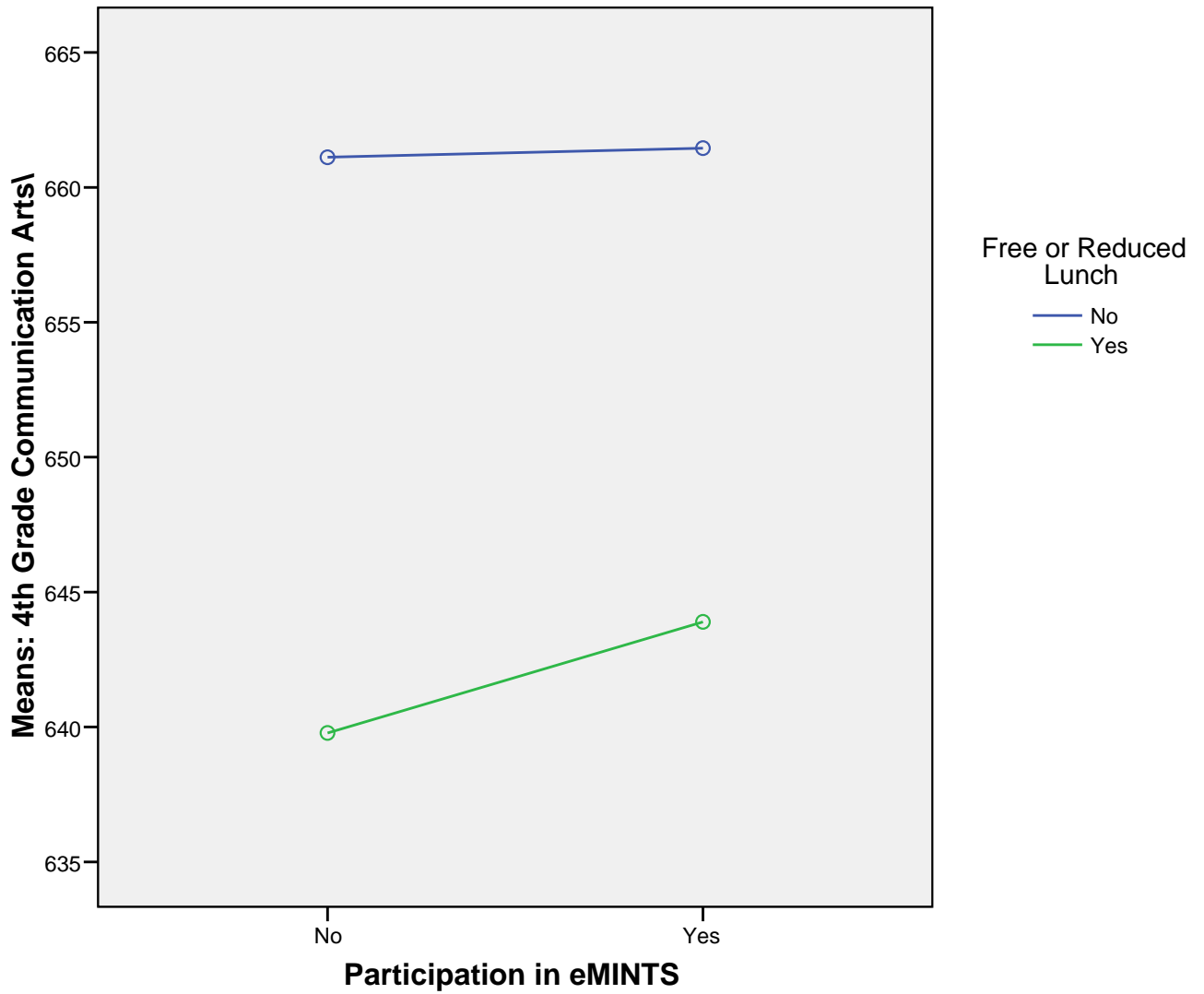


Figure 7. Mean Plots of Communication Arts MAP Scores for 5th Grade Students Separated by eMINTS Participation and Free or Reduced Lunch Program Status.

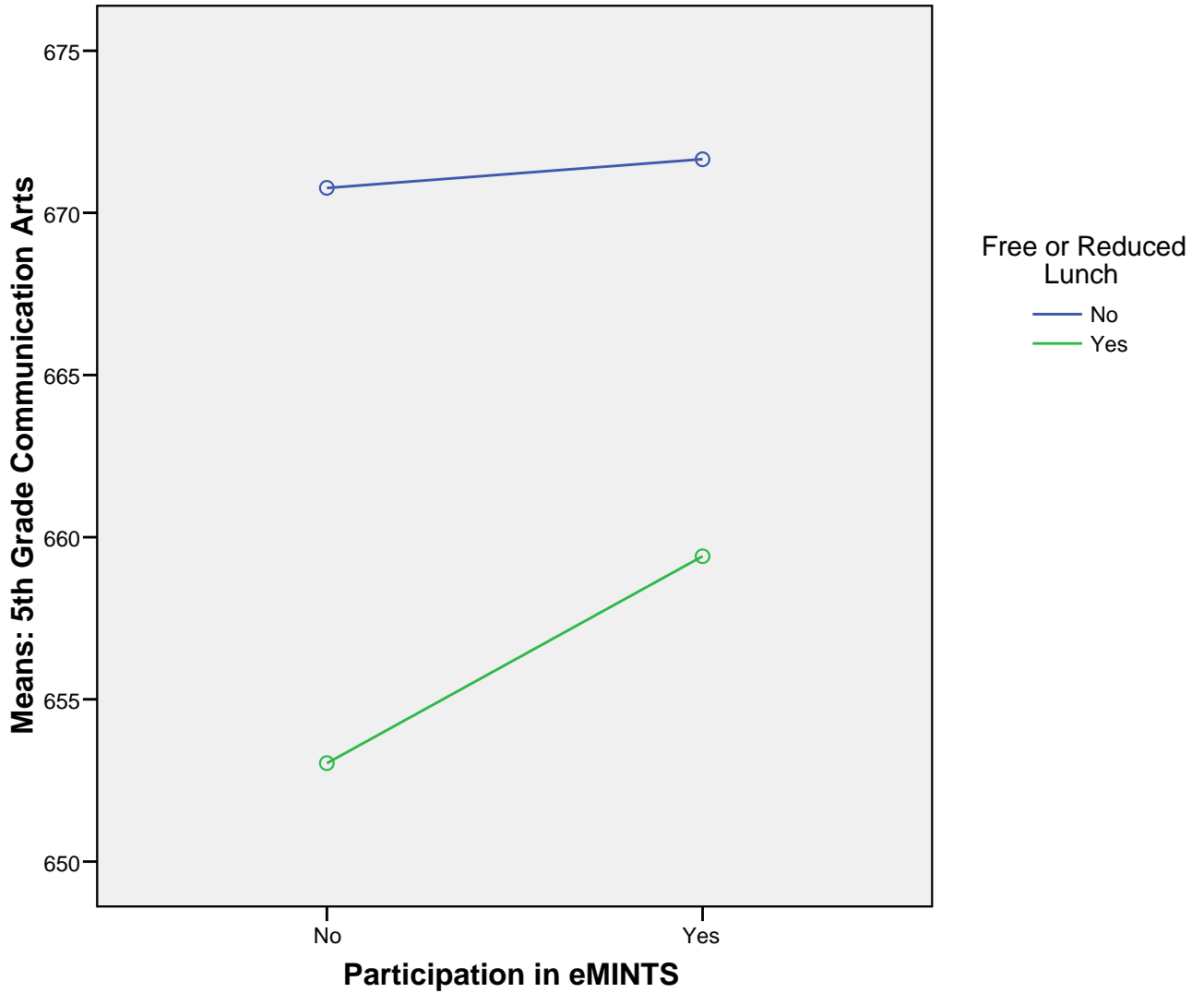


Figure 8. Mean Plots of Communication Arts MAP Scores for 6th Grade Students Separated by eMINTS Participation and Free or Reduced Lunch Program Status.

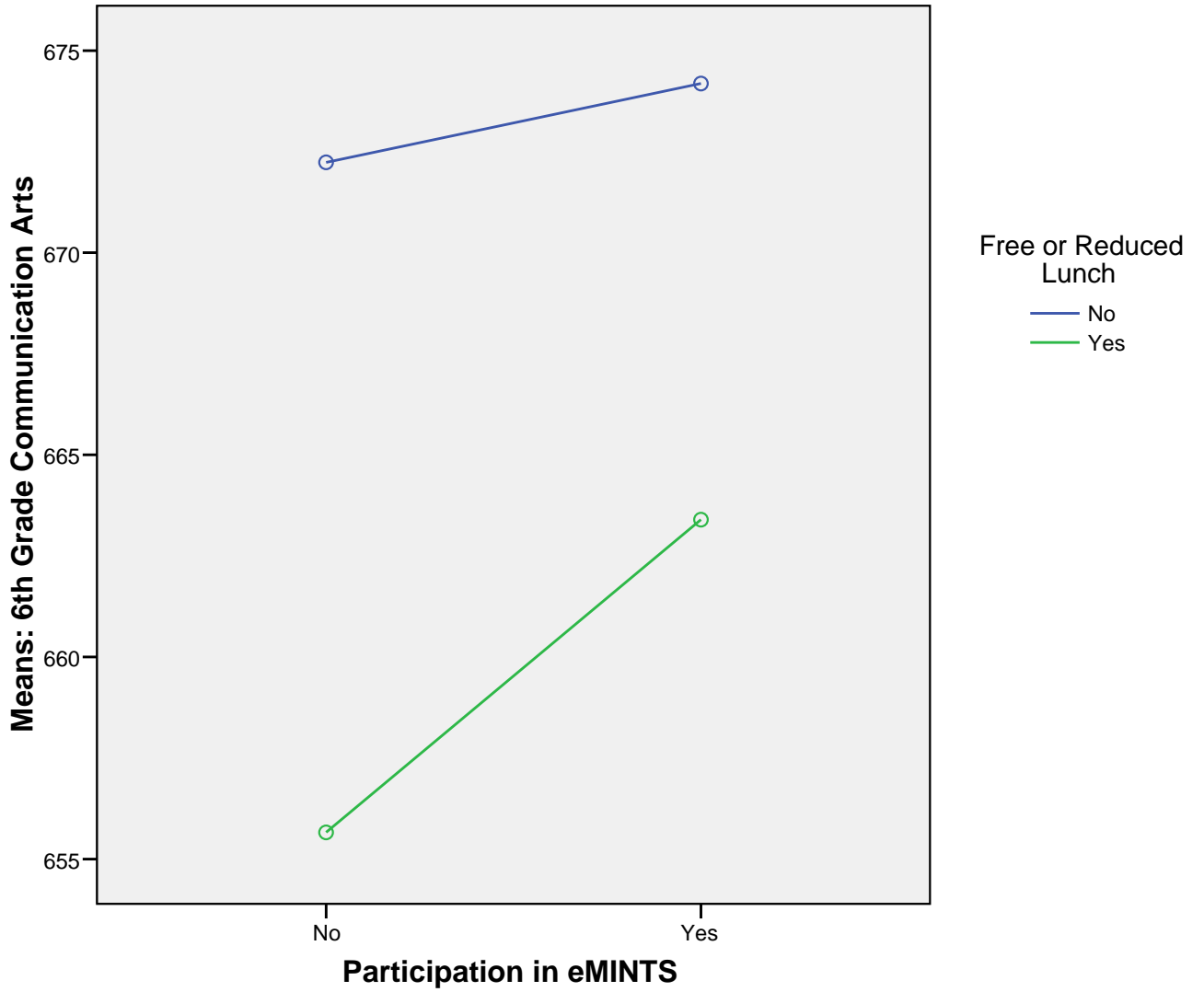


Figure 9. Mean Plots of Mathematics MAP Scores for 4th Grade Students Separated by eMINTS Participation and Title I Status.

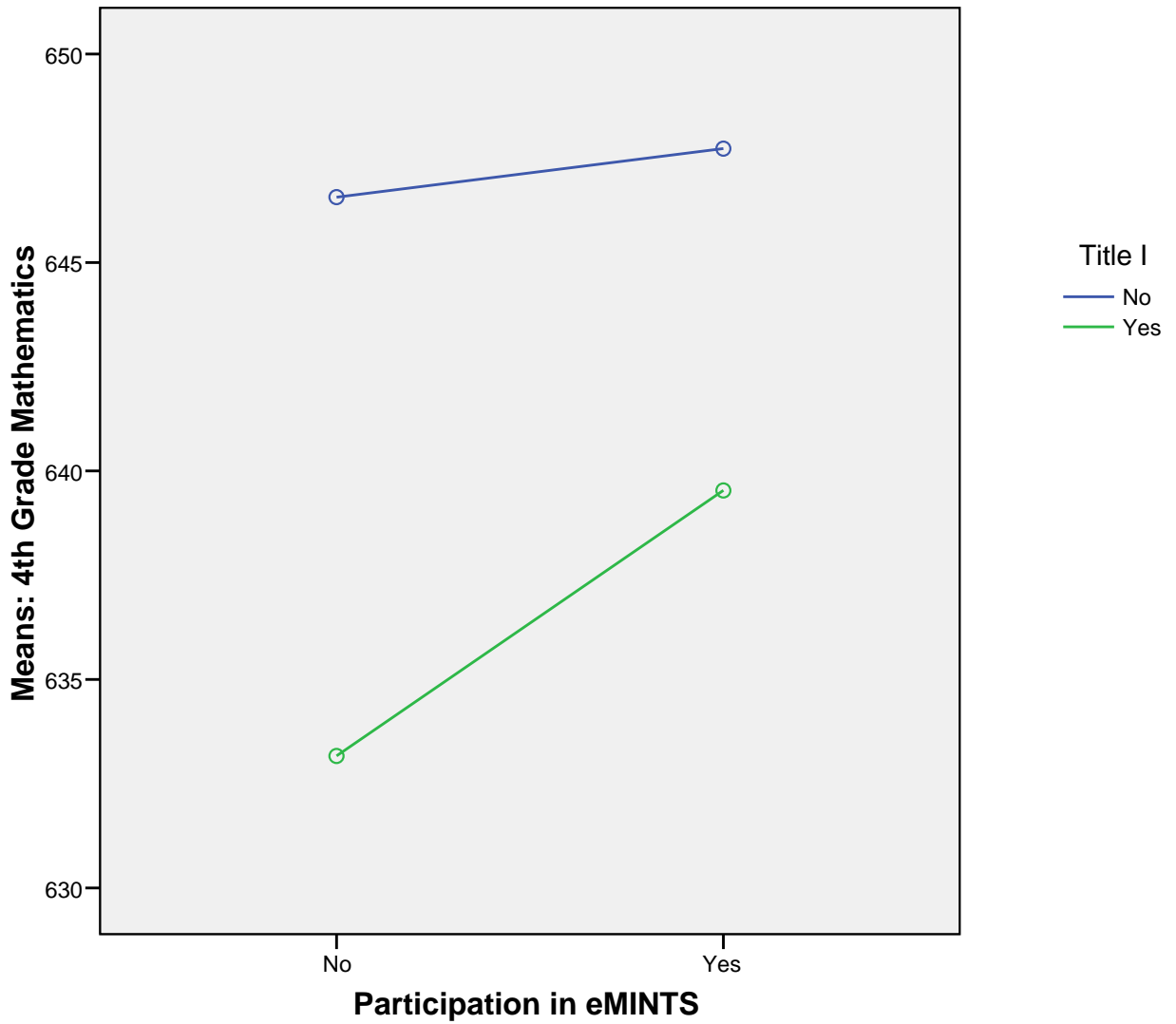


Figure 10. Mean Plots of Mathematics MAP Scores for 5th Grade Students Separated by eMINTS Participation and Title I Status.

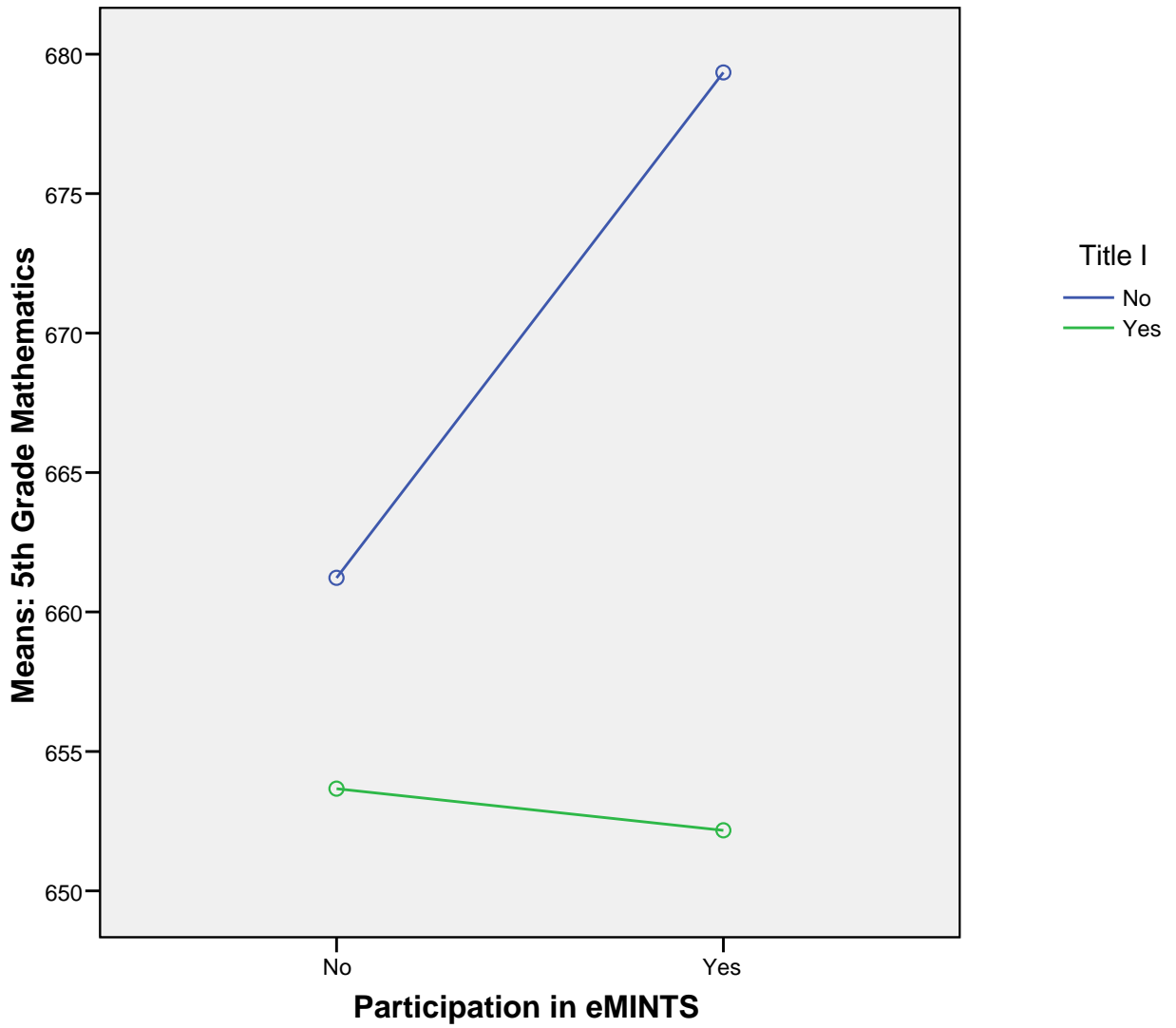


Figure 11. Mean Plots of Mathematics MAP Scores for 6th Grade Students Separated by eMINTS Participation and Title I Status.

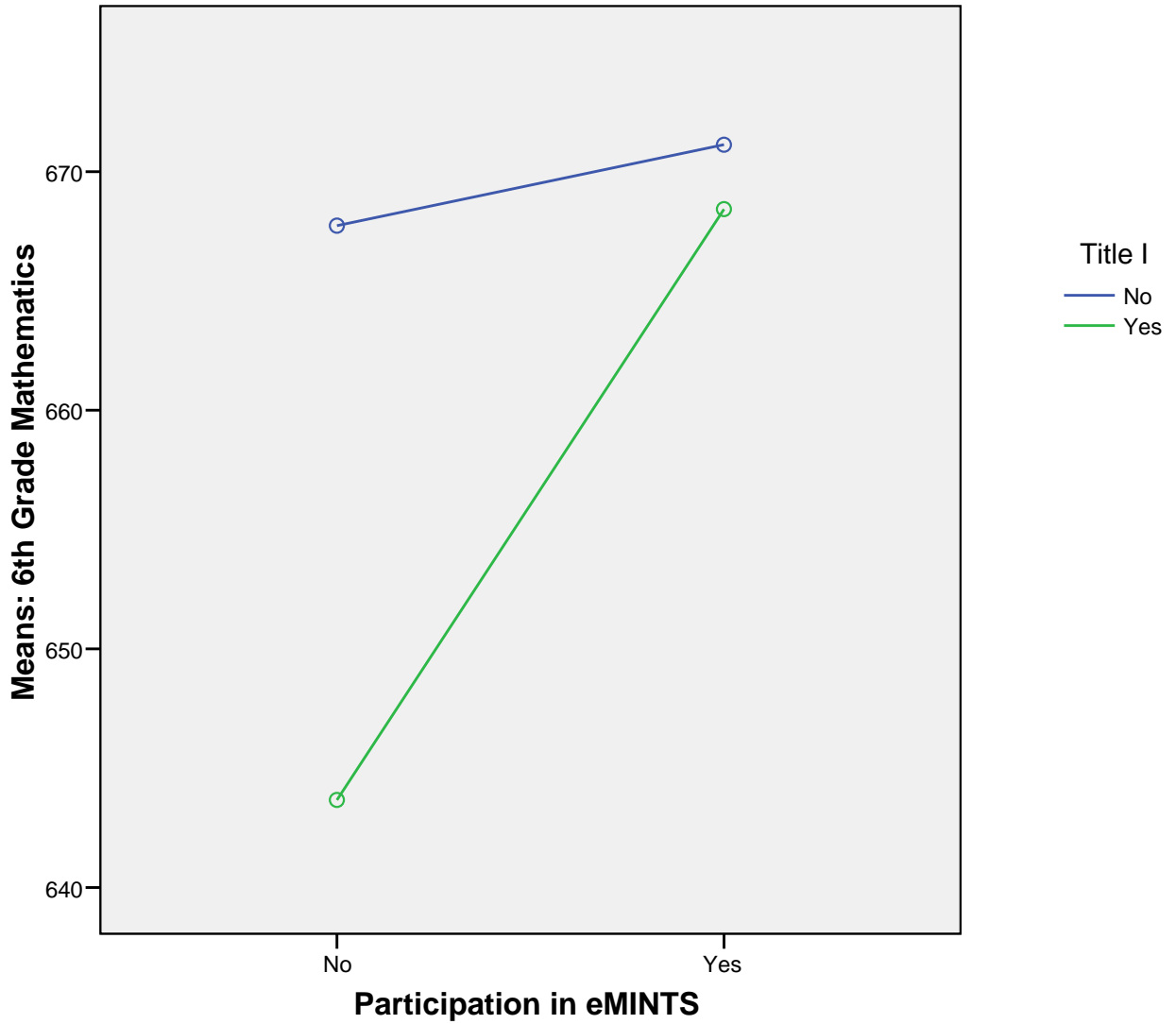


Figure 12. Mean Plots of Communication Arts MAP Scores for 4th Grade Students Separated by eMINTS Participation and Title I Status.

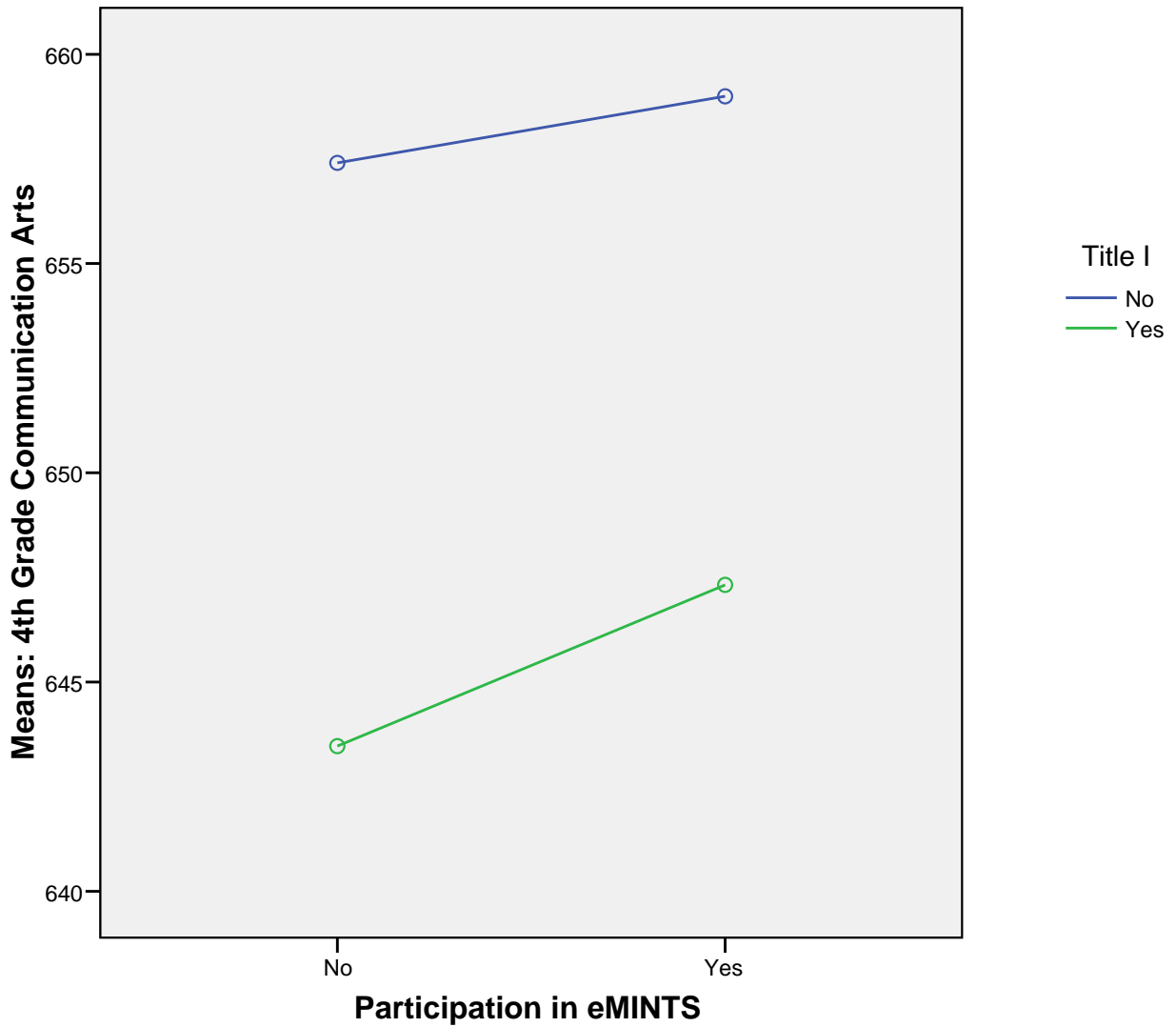


Figure 13. Mean Plots of Communication Arts MAP Scores for 5th Grade Students Separated by eMINTS Participation and Title I Status.

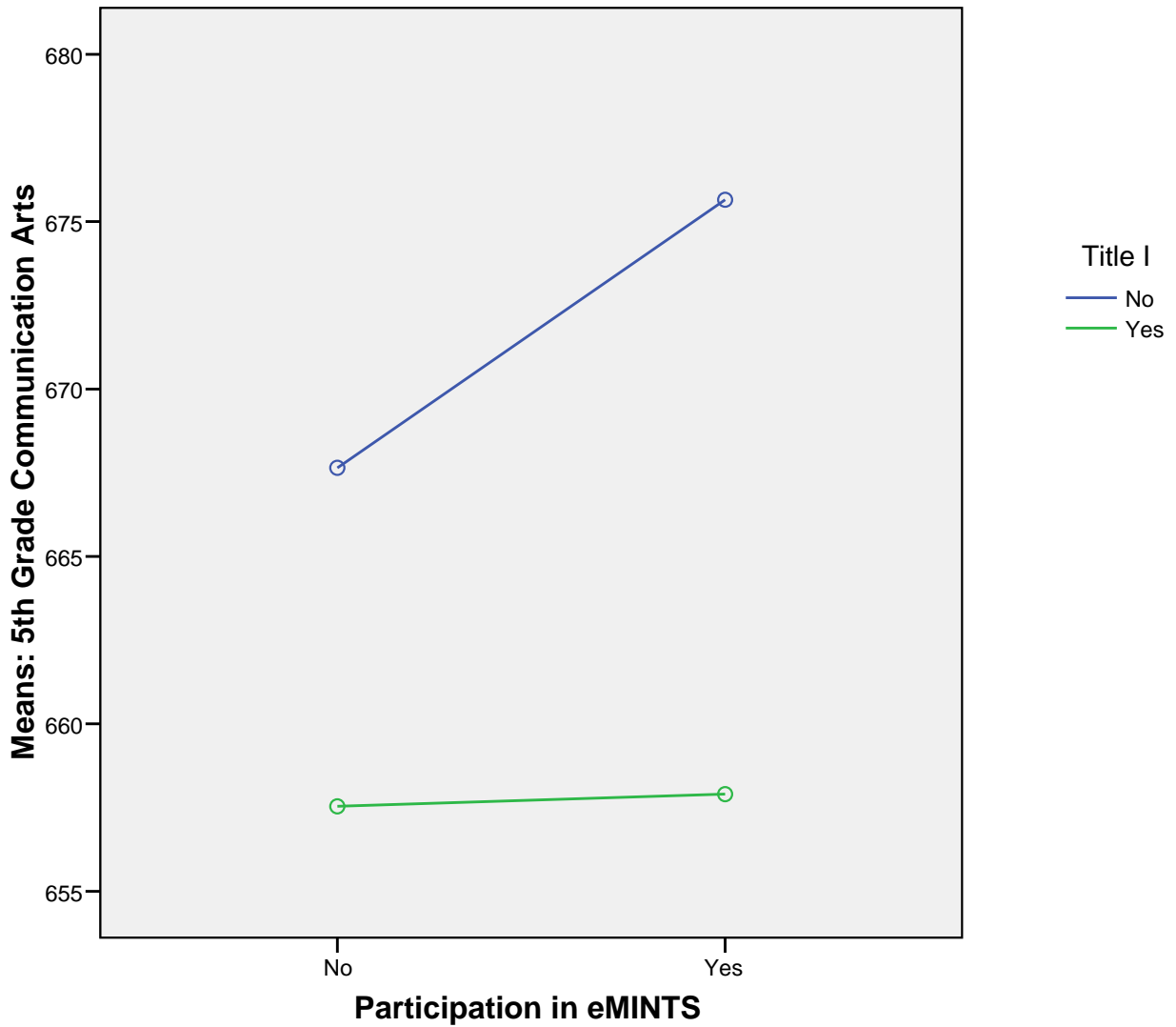


Figure 14. Mean Plots of Communication Arts MAP Scores for 6th Grade Students Separated by eMINTS Participation and Title I Status.

