National Science Foundation
Math and Science Partnership Program Evaluation (MSP-PE)

Student Achievement in the MSP Program:
Continuing Exploration of the MSP-MIS Data

Robert K. Yin, Ph.D.
COSMOS Corporation

*The present draft is based on materials, information, and data that were available
to the authors as of August 2007.*

PREFACE

This study is one in a series of briefs for the Math and Science Partnership Program Evaluation (MSP-PE) conducted for the National Science Foundation's Math and Science Partnership Program (NSF MSP). The MSP-PE is conducted under Contract No. EHR-0456995. Since 2007, Bernice Anderson, Ed.D., Senior Advisor for Evaluation, Directorate for Education and Human Resources, has served as the NSF Program Officer. The author is Robert K. Yin of COSMOS Corporation.

The MSP-PE is led by COSMOS Corporation in current partnership with George Mason University (GMU) and Brown University. Robert K. Yin (COSMOS) serves as Principal Investigator (PI) and Jennifer Scherer (COSMOS) serves as one of three Co-Principal Investigators. Additional Co-Principal Investigators and their collaborating institutions (including discipline departments and math centers) are Patricia Moyer-Packenham (GMU) and Kenneth Wong (Brown).

STUDENT ACHIEVEMENT IN THE MSP PROGRAM:
CONTINUING EXPLORATION OF MSP-MIS DATA

Introduction

The MSP-MIS's Student Achievement Data

The Math and Science Partnership (MSP) Program started a formal management information system (MSP-MIS) at the outset of the program. All awardees must submit data to the system annually. Included in this requirement is the submission of school-level student achievement data for all "partnering" schools. To date, the data submissions have covered the school years 2002-03, 2003-04, 2004-05, and 2005-06 (however, the 2005-06 data will only be available for analysis in the fall of 2007).

For every school, the required student achievement data include:

a) the number of students tested and the number scoring above the desired proficiency criterion on state assessment tests;[1]
        for
b) every grade level tested at the school;
        and
c) in either mathematics and science (but not for other subjects).

For analysis purposes, the number tested and the number scoring above proficient can be used to calculate a "percent proficient" for the entire school[2] for the given academic year.

Reporting of These Data by the Math and Science Partnership Program Evaluation (MSP-PE)

The MSPs conduct a wide variety of activities involving K-12 students and their

---

[1]See the Appendix for the exact wording of the MSP-MIS items.

[2]The procedure aggregates the total and sheer number of students reported for all grade levels and all tests, with no weighting used. For instance, no weights have been used even if the number of students is much larger at one grade level than another, or if performance on multiple mathematics (or science) tests are reported for the same grade level. Similarly, different schools have reported performance for different grade levels, and these differences have been ignored. Future analyses may desire to use weights or make other adjustments to make the school averages more comparable, but such adjustments were beyond the scope of the present analysis.

teachers. When so doing, the MSPs generally focus these activities on specific schools, grade levels, and subjects (if not specific teachers, classrooms, and lessons or content-specific strands). Attributing changes in student achievement to the MSPs' efforts would require localized studies targeting the specific classrooms or lessons, and the MSPs' own project evaluators are responsible for conducting the needed research.

At the same time, a broader policy expectation has accompanied the support of the MSP Program. The expectation calls for casting a wider net: whether the work of the MSPs might be reflected by changes in student achievement for the larger set of entities—i.e., the entire set of schools or school districts involved with an MSP. In some cases, the MSPs' work has actually embraced a school-wide or district-wide scope, making the wider net appropriate and possibly also the topic of the localized studies. However, in many cases the wider net has been of interest even when an MSP's activities only touch upon a fraction of the classrooms in the participating schools and districts. Moreover, the broader expectation is about the performance of the MSP Program as a whole, not about any specific MSP.[3]

As a result of the broader expectation, the Math and Science Partnership Program Evaluation (MSP-PE) has used the MSP-MIS data to analyze and report student achievement trends for 2002-03, 2003-04, and 2004-05. The goal is to cover the program in its entirety, limited only by the completeness of the data reported to the MSP-MIS. The MSP-PE's analysis has followed two different designs.

Longitudinal Design. The first design restricts the analysis to those schools that reported student achievement data for two or more consecutive years, representing a longitudinal trend analysis. The trends cover pairs of years (2002-03 to 2003-04, or 2003-04 to 2004-05) or all three years (Dimitrov, Jan. 2006; Dec. 2006; and Feb. 2007). The data have been analyzed separately for mathematics and science, and for students of different racial and ethnic groups and gender. Separate scores also have been reported for the three main grade spans (elementary, middle, and high schools).

NSF has used the findings from this first design as part of a comprehensive "National Impact Report" (2007) and in three separate press releases (Feb. 2006; Jan. 2007; and July

---

[3]The broader expectation also exists in the absence of an appropriate assessment tool. The mathematics and science content of the MSPs' activities is not likely to cover comprehensively the topics on the tests and also may not be aligned with the tests' content. Thus, even if an MSP's activities were schoolwide or districtwide, any expected changes might be limited to certain strands of a test but not the test in its entirety. However, states do not routinely make available strand-level (or item-level) scores from their achievement tests, so only the global test scores can be used in relation to the MSP Program. Some MSPs have addressed this issue by having their district partners administer customized tests, but this information cannot readily be compiled across MSPs or for the MSP Program as a whole.

2007), to address the broader expectations for the program. At the same time, these trends have the limitation that the number of schools reporting for two or more consecutive years can be much smaller than the number of schools reporting in any given year, and the number of schools reporting all three years has been extremely limited.

Sequential Cross-Sectional Design. The second design overcomes these limitations by analyzing data cross-sectionally for any given year. For instance, the first design has been limited to118 schools and nine of the 48 MSPs. In contrast, for the latest year of 2004-05, the second design had student achievement data representing 1,054 schools and 32 MSPs[4] (see Exhibit 1—all exhibits and their supporting tables are found at the end of this report).

Each year's profile is then used to compile two- or three-year trends. However, although the number of schools and MSPs is no longer limited as in the first design, the collection of schools for any given year is different. The cross-sectional findings therefore always need to be accompanied with that caveat.[5]

As part of its agency reporting requirements under the U.S. Office of Management and Budget's Performance Assessment Rating Tool (PART) procedure, NSF has used the cross-sectional findings to report the percentage of MSP awardees whose school averages have exceeded pre-designated levels of proficiency. The reporting requirements stipulate that data should cover the breadth of the MSP Program. The program also needs to show certain levels of year-to-year progress, and NSF plans to use the findings from each yearly cross-section to satisfy the reporting requirements. For each year, the data are again reported six ways—for mathematics and science separately and for each of the three grade spans.

Possible Enhancements to the Existing Analyses of Student Achievement Trends

The MSP-PE will continue updating both types of analyses in coming years, providing NSF with fresh information about student achievement trends in relation to the

---

[4]Even so, the number of schools reporting student achievement data was still but a fraction (11, 21, and 31 percent respectively for each of the three years) of the schools reporting any type of data (other than student achievement data) to the MSP-MIS. Thus, on average each MSP is represented by only a fraction of its partnering schools, throughout this entire paper.

[5]The cross-sectional design is analogous to the school accountability reporting under *No Child Left Behind (NCLB)*. Under *NCLB*, a school is held accountable for certain annual performance levels even though the students at each tested grade level change from year-to-year.

broader expectations. Nevertheless, the potential interpretations of the findings deriving from either of the two designs are extremely limited.

At best, the two designs now only point to the student achievement trends as occurring during the same years as the existence of the MSP Program (*concurrent trends*). A more desirable objective would be to explore whether the student achievement trends were potentially related to the program (*associated trends*). Any advance in this direction would be important for assessing the MSP Program. Thus, the enhancements to the existing two designs discussed next could move the analysis in this direction (however, a true experimental design would be needed to make inferences about whether the student achievement trends were *attributable to* the program).[6]

The enhancements arise from three conditions under which the MSPs operate and report their work: 1) a scoping condition, 2) a participatory condition, and 3) a cohort condition.

1. Scoping: MSPs do not necessarily cover both mathematics and science or cover all three grade spans. Both of the existing designs report data for student achievement trends in both mathematics and in science. However, some MSPs have deliberately limited their efforts to either mathematics or science education, but not both. Their schools' student achievement performance on the non-targeted subject would be entirely serendipitous and unrelated to any MSP activity. In a like and equally important manner, the existing student achievement trends cover all three grade spans (elementary, middle, and high school), but some MSPs have limited their work to one or two of the grade spans, but not all three.[7]

2. Participation: MSPs' schools vary in their extent of participation in MSP activities. This variability represents the second condition for enhancing the existing analyses. The MSP-MIS specifically asks the awardees to report, again for individual schools, two related items.[8]

---

[6]For the MSPs as a whole, a separate MSP-PE study is attempting to establish a minimal counterfactual framework by matching the MSP schools with a set of comparison or non-MSP schools (see Wong and Socha, forthcoming). The data being used come from states' Web sites, not the MSP-MIS, which only covers MSP schools.

[7]The scoping information covering an MSP's focus on selected academic areas (mathematics or science) or on selected grade spans (elementary, middle, and high school) is not a formal part of the MSP-MIS. However, the information is readily available from the awardees' annual reports to NSF and can therefore be used to augment the existing analyses.

[8]Again, see the Appendix for the exact wording of the MSP-MIS items.

The first item asks for a categorical (*yes/no*) response in relation to whether the school has met (or not met) any of three criteria for participating in MSP activities—two dealing with K-12 students (30 percent or more participating in MSP activities) and the third dealing with K-12 teachers (30 percent or more participating in MSP activities). The second item asks for a numeric response covering the number of teachers meeting the 30 percent criterion. Because the MSP-MIS also asks schools for the total number of teachers in the whole school, the responses to the second item can be used to calculate the percentage of teachers meeting the 30 percent criterion.

3. Cohorts: The MSPs started in different years, with the first cohort of awards in fall 2002, the second in the fall of 2003, and two additional cohorts since then. The staggered pattern means that the student achievement scores for 2002-03 would represent the first implementation year for Cohort I, while the scores for 2003-04 would represent that cohort's second year but only the first year for Cohort II. Thus, although most of the MSPs have been continuing for a five-year award period, the student achievement data for any given calendar year will reflect a mix of schools at different stages of MSP maturation.

Remainder of this Paper. All three conditions need to serve as qualifiers in defining the relevant student achievement trends. The closer that the scope, implementation, and timing of the MSPs' work collectively match the reported student outcome categories, the more that progress can be claimed in *associating* the work with the outcomes.

Eventually, the MSP-PE team intends to use multivariate statistical models to sort out the potential associations. At this juncture, and for the remainder of this paper, the goal is more modest. The paper will present the available data on the three conditions and will show the distribution of the MSPs and their schools along these variables.

The more modest objective serves two purposes. First, presentation of the three conditions separately is intended to foster a dialogue regarding the most appropriate multivariate models that might be developed later. Second, NSF's reporting requirements for PART may preclude the use of any models, and an alternative might have to be some kind of reporting of student achievement data with qualifiers taken into account in a more simplistic fashion—possibly derivable from the present paper.

Preliminary Explorations of
"Scoping," "Participation," and "Cohort" Conditions

The explorations start with three preliminary notes. First, the remainder of this paper will report all data according to the two existing designs, longitudinal and sequential cross-sectional, referenced hereafter as "Design A" and "Design B."

Second, the summary measure to be used for the sake of discussion will be:

- *The percent of MSPs for whom at least 50 percent of the tested students met or exceeded the proficiency criterion on state assessment tests (for all schools in the MSP reporting student achievement data to the MSP-MIS).*

The shorthand reference to this summary measure will be the "percent of MSPs attaining 50 percent proficiency."

The measure has been used by NSF in its reporting requirements for PART. Therefore, the discussion in the remainder of this paper can be readily interpreted from the standpoint of how such reporting requirements might be affected by the three conditions under examination.

At the same time, because the MSPs differ greatly in the number of schools included in their partnerships, the summary measure masks the potential breadth of the MSP Program, with some MSPs covering large numbers of schools. Such breadth might be more readily acknowledged if the summary measure were cast in terms of the performance of schools as the unit of analysis. Schools, not MSPs, were therefore the unit of analysis used in the earlier reports of student achievement trends submitted by the MSP-PE to NSF (e.g., Dimitrov, Jan. 2006). A desired analysis would determine the differences in findings, if any, when using MSPs and schools as units of analyses. However, this analysis was beyond the scope of the present paper.

As a third preliminary note, the graphics in this report only depict the summary measure. However, each graphic has a supporting table that provides relevant frequencies used to produce the summary measure, as well as comparable data for schools.

Student Achievement Trends, with None of Three Conditions Are Taken into Account

Under Design A, the student achievement trends for the three years (2002-03, 2003-04, and 2004-05) show steady or rising patterns for both mathematics and science, for all grade spans except for high school science, which dips to zero percent of MSPs in the third year (see Exhibit 2–Design A). Comparing grade spans, the scores for elementary schools tend to be higher for all three years than the counterpart scores for middle or high schools.[9]

---

[9]The trends were not as strong as the rising trends in the earlier MSP-PE analyses, which as previously noted, used schools and their proficiency levels as the summary measure, rather than the percent of MSPs attaining 50 percent proficiency as the summary measure. Perusal of the backup tables in the present paper

Under Design B, however, the analogous trends all are mixed, with the percent of MSPs consistently dipping in 2003-04, the middle of the three years (see Exhibit 2–Design B). Furthermore, in only two cases, middle and high school mathematics, did the subsequent rise in 2004-05 return to the original levels set in 2002-03. Comparing grade spans, the scores for any given grade span were not consistently higher or lower than those for the other grade spans.

As expected of the two designs, Design A has a static but exceedingly small number of MSPs, whereas Design B has a larger and increasing number of MSPs over time.

Trends When MSPs' Scoping Is Taken into Account

For Design A, the student achievement trends hardly change when the scoping conditions (focus on mathematics or science education; or focus on particular grade spans) are taken into account (see Exhibit 3–Design A): the trends tend to be steady or rising; in nearly every case, the "percent of MSPs attaining 50 percent proficiency" is similar to the percent when neither scoping condition was taken into account; and the scores for the elementary schools again tended to be higher than those of the other two grade spans. For Design B, the student achievement trends also change little, relative to the Design B pattern without the scoping conditions (see Exhibit 3–Design B).

Whether the changes in patterns are minor when scoping is taken into account deserves careful attention in subsequent multivariate analyses. Sometimes, initially observed patterns can be misleading. However, if the multivariate analyses corroborate these initially observed patterns, the results may raise direct questions about any broader expectation of the MSP Program. Each MSP's work has been extensive, and if focused only on mathematics or science or only on a certain grade span, some differentiation from the other academic subject area or the other grade spans would be expected. Without such differentiation, the important questions in need of investigation would include such rivals as whether: 1) similar but non-MSP efforts were occurring in the other subject areas or grade spans, and 2) other covariates, such as the baseline achievement scores of the various schools, need to be taken into account before drawing any conclusions.

Trends When Participation in MSP Activities Is Taken into Account

Participation Compared to No Participation. Schools may report student

---

suggests that the two summary measures do not produce any contrary differences in the student achievement trends.

achievement data to the MSP-MIS independent of whether they have actually participated in their MSP's activities. (Note that the same MSP can appear in both "participating" and "non-participating" categories, because it can have a "participating" score that derives from the student achievement at its schools reporting participation, and also a "non-participating" score that derives from its schools reporting no participation.)

Design A shows the student achievement trends when one or more of an MSP's schools had met any of three criteria for participating in an MSP's activities ("participating"), compared to those MSPs whose schools had not met any of the three criteria ("non-participating"). The comparison shows that the non-participating group had higher scores than the participating group, which also has rather flat trends over time (see Exhibit 4–Design A). This pattern is contrary to expectations. If the findings are not found to be an artifact through subsequent analyses, rival explanations of the sort just considered under "scoping" will need to be explored.

Design B presents the same analysis, but for all schools reporting every year. In this case, the participating group tends to outscore the non-participating group in science, although both groups tend to be alike in mathematics (see Exhibit 4–Design B). The trends over time tend to be flat for the participating group but improving for the non-participating group. None of the differences is strong, so the pattern is not supportive of or contrary to expectations.

Different Levels of Participation. One possible artifact in the preceding comparisons, especially under Design A, is an imbalance between the participating and non-participating groups: the vast majority of the schools report that they are participating in the MSP's activities (see the backup tables to Exhibit 4). Thus, a possibly more desirable analysis would try to account for the differences in the level of participation across MSPs. Those with greater participation should show more positive student achievement trends, if: a) the measures are sufficient; b) there is any relationship between an MSP's work and student outcomes; and c) no offsetting conditions are present.

One way of defining the level of participation is to convert different combinations of the three previous (categorical) criteria for defining "participation" and "no participation" into some type of scale (see Exhibit 5). For instance, a school satisfying all three criteria (see segment no. 1 in Exhibit 5) might be considered as having attained the highest level of participation; schools satisfying only two of the criteria (see segments 2, 3, and 4, in Exhibit 5) as having lesser levels; and schools satisfying only one criterion (see segments 5, 6, and 7 in Exhibit 5) as having the lowest levels.[10]

---

[10]An earlier MSP-PE report analyzed the relationship between student achievement and these three criteria by considering each criterion as a binary (1=yes, and 0=no) condition. The analysis then used the binary conditions and the procedures from Item Response Theory to produce a range of scores from the

Alternatively, and as described earlier, the MSP-MIS provides a different item that measures one aspect of a school's level of participation in an MSP's activities, asking schools to define: a) the number of teachers who have "...participated in 30 or more hours of MSP-sponsored activities during a given school year;" and b) the total number of teachers at the school at the beginning of the school year. The responses become the numerator and denominator in calculating the percentage of participating teachers, in turn reflecting schools' level of teacher participation in MSP activities.

Following such a procedure and dividing the proportions into quintiles, Design A shows no particular tendency: Within any given year, the percent of MSPs attaining 50 percent proficiency does not appear to be associated with increased levels of teacher participation; across the three years, the achievement levels tend to be flat or mixed, except for slightly higher scores in mathematics in 2004-05 associated with all levels of teacher participation (see Exhibit 6–Design A). Likewise, for Design B, no particular pattern seems to emerge (see Exhibit 6–Design B).

Trends When Cohort Sequence Is Taken into Account

Of the 48 MSPs, 22 started in 2002-03, 14 in 2003-04, and 12 in 2004-05.[11] The staggered startups mean that in any given calendar year (except for the first year, 2002-03), a cross-section of data will represent MSPs in different cohorts. All other things being equal, the older cohorts might be expected to be associated with changes in student achievement trends earlier than the later cohorts, but the cross-sectional analysis commingles the cohorts.

Design A, being limited to MSPs reporting data for all three years, by definition only contains Cohort I MSPs (but not all of them, because only 9 of 22 of them started reporting student achievement data in 2002-03). The previous analyses already presented (e.g., see Exhibit 2–Design A) have reflected the trends for this rather homogeneous group of MSPs.

In contrast, Design B has a heterogeneous group of MSPs that includes Cohort I, II, and III awardees. Some of these MSPs might have reported two years of data (e.g., either Cohort I or II awardees reporting for 2003-04 and 2004-05), but many of the MSPs have reported only one year of student achievement data.

---

highest to the lowest levels of participation (Dimitrov, Jan. 2006). The findings showed a correlation between participation and student achievement trends from 2002-03 to 2003-04, for all schools reporting data for both years.

[11]Since 2004-05, the MSP Program has made a few additional awards, but these awards are outside of the scope of the present report.

Disaggregating the MSPs in Design B according to these various categories (cohorts and number of years reporting) suggests insights into the previously reported "dips" in 2003-04. (Note that the disaggregation means that the same MSP may again appear more than once among the disaggregated groups, because some of an MSP's schools may only have reported one year of data, while other schools in the same MSP may have reported two years of data.[12])

Subdividing into three subgroups may be especially revealing (see the three subgroups labeled "a," "b," and "c" in Exhibit 7). First, most of the MSPs had at least a portion of their schools reporting only one year of data in Design B (subgroup "a"). Second, both Cohorts I and II had some schools reporting two years of data (subgroup "b"). Third, Design B also included the Cohort I MSPs that had reported three years of data (subgroup "c").

The trends for these three groups show that the previously observed "dip" in 2003-04 was mainly associated with subgroup "a"—an absence of scores in mathematics for 2002-03 and an actual dip in scores for 2003-04 in science. For subgroups "b" and "c," where either a two-year or three-year trend could be calculated, all of the trends were either flat or rising.[13] In other words, the dip may have entirely reflected differences in the mix of schools reporting each year, rather than any actual year-to-year trends. For this reason, unless the schools reporting one year of data only (subgroup "a") are ignored, any results from Design B will be misleading.

Tentative Lessons Learned and Next Steps

The preliminary explorations have shown the complexities that underlie attempts to track student achievement trends occurring concurrently with the MSPs. The cohort structure of the MSP Program, combined with the (in)completeness of reporting to the MSP-MIS, create the need to disentangle the MSPs into subgroups rather than reporting about them in any aggregate fashion.

Once the cohort and reporting conditions have been disentangled, the scoping and

---

[12]For instance, referring back to the beginning of this paper (see Exhibit 1), schools in nine Cohort I MSPs reported three years of data; although other schools in three of the same nine MSPs only reported data for two years, 2002-03 and 2003-04, the total number of Cohort I MSPs reporting for 2002-03 remains nine.

[13]The breakdowns also show differences between Cohort I's first two years and Cohort II's first two years, as well as differences within Cohort I (between the nine MSPs reporting all three years and the 15 that only started reporting in 2003-04). These and other differences are potentially worthy of later inquiry, though such analyses go beyond NSF's immediate reporting requirements addressed by this paper.

participation conditions may still be relevant. Thus, re-examining the scoping and participation conditions for different cohort subgroups serves as an important next step in further analyzing the MSP-MIS data.

In the long run the main alternatives (and their potential strengths and weaknesses) for reporting student achievement trends for the MSP Program would appear to be as follows:

Option 1. Report trends for only those MSPs whose schools have submitted data for all of the relevant years (e.g., Design A for the first three years of the MSP Program):
-strength: contains a homogeneous group of MSPs over the longest period of time.
-weakness: is limited to a portion of the schools in any given MSP and to a small fraction of the schools across the entire MSP Program.

Option 2. Report trends for those MSPs whose schools have submitted data for at least two successive years, separating each subsequent pair of years (e.g., 2002-03 to 2003-04 separated from 2003-04 to 2004-05):
-strength: captures a larger proportion of the schools in any given MSP and will cover a large proportion of the schools across the entire MSP Program.
-weakness: further fragments the task of interpreting any trends for the MSP Program as a whole, because cohort and chronological splits (e.g., the 2002-03 to 2003-04 pair versus the 2003-04 to 2004-05 pair) must now be interpreted alongside of the existing six-way split between grade spans and academic subjects. Inevitably, some scores will be higher and others lower, making it difficult to arrive at any overall assessment.

Option 3. Report trends using schools, not MSPs, as the unit of analysis, then following either Option 1 or Option 2 above:
-strength: captures the breadth of the MSP Program's work because using MSPs as a unit of analysis masks the fact that some MSPs are working with large numbers of schools.
-weakness: may not suit PART or other reporting requirements, which want to assess federal programs like the MSP Program in terms of the success of their constituent "projects."

Multivariate models, of the sort already in previous MSP-PE reports in analyzing schools as a unit of analysis, may help to reduce the interpretive problems by amassing several if not all qualifying conditions into the same model. Thus, the testing of such models represents a major next step. Nevertheless, the models themselves may produce mixed results, and the use of the models in satisfying NSF's reporting requirements needs to be explored. In the meanwhile, attempts to report annual cross-sections of the MSP data, as in Design B, without disaggregation into subgroups, should be resisted.

Exhibit 1

**Number of Schools Reporting Any Student Achievement Data
to the MSP-MIS, 2002-03 to 2004-05
(Either Mathematics or Science)**

		Years Covered by Schools' Student Achievement Data					
		2002-03		**2003-04**		**2004-05**	
Schools Reporting		**No. of Schools**	**No. of MSPs**	**No. of Schools**	**No. of MSPs**	**No. of Schools**	**No. of MSPs**
Only One Year		2	2	136	9	429	30
Two Years Only	**2002-03 and 2003-04**	8	3	8	3	-	-
	2003-04 and 2004-05	-	-	504	23	504	23
	2002-03 and 2004-05	3	2	-	-	3	2
All Three Years		118	9	118	9	118	9
ALL SCHOOLS REPORTING		131	9	766	25	1054	32

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

Exhibit 2

**Student Achievement Trends,
When None of Three Conditions Are Used**

**Design A:
Schools Reporting All Three Years**
(also see Table 2-1)

**Design B:
Schools Reporting Any Year**
(also see Table 2-2)
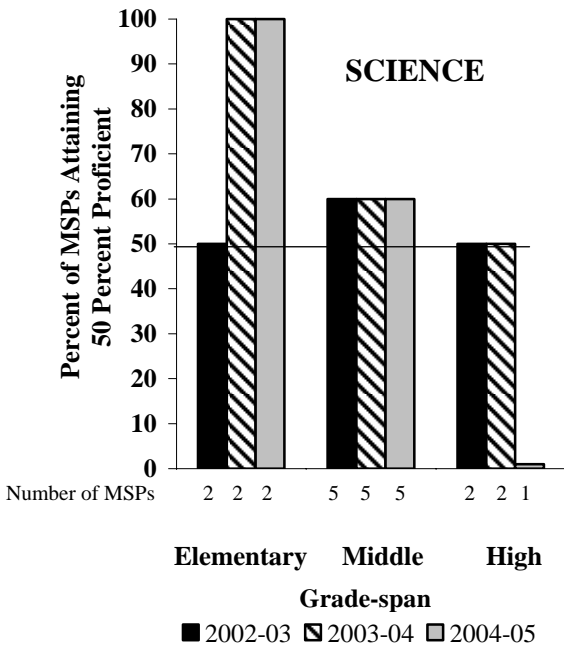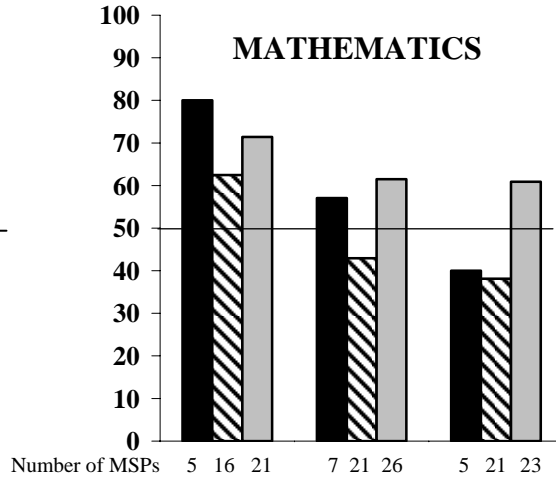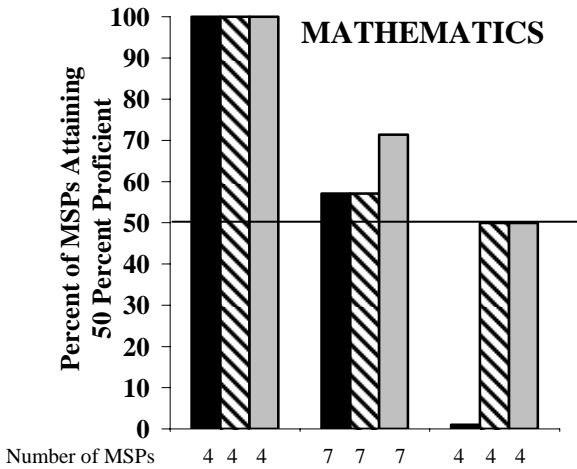
Table 2-1 (accompanying Exhibit 2-Design A)
(Schools Reporting All Three Years)

MATHEMATICS

	Grade span	No. schools	No. districts	No. MSPs	Avg. percent proficient[*]		Percent of MSPs attaining 50 percent proficient	
					Per school	Per MSP	Schools	MSPs
2002-2003	Elementary	85	14	4	59.1	74.0	65.9	100.0
	Middle	25	20	7	48.7	52.1	44.0	57.1
	High	8	8	4	33.7	28.7	25.0	0.0
	Ungraded	0	0	0	N.A.	N.A.	N.A.	N.A.
2003-2004	Elementary	85	14	4	66.0	79.1	76.5	100.0
	Middle	25	20	7	52.7	55.1	52.0	57.1
	High	8	8	4	50.5	47.3	62.5	50.0
	Ungraded	0	0	0	N.A.	N.A.	N.A.	N.A.
2004-2005	Elementary	85	14	4	74.7	83.6	92.9	100.0
	Middle	26	21	7	52.4	51.6	61.5	71.4
	High	7	7	4	49.4	45.1	57.1	50.0
	Ungraded	0	0	0	N.A.	N.A.	N.A.	N.A.

SCIENCE

	Grade span	No. schools	No. districts	No. MSPs	Avg. percent proficient[*]		Percent of MSPs attaining 50 percent proficient	
					Per school	Per MSP	Schools	MSPs
2002-2003	Elementary	20	4	2	65.7	66.0	65.0	50.0
	Middle	17	12	5	52.1	54.7	58.8	60.0
	High	3	3	2	44.4	56.7	33.3	50.0
	Ungraded	0	0	0	N.A.	N.A.	N.A.	N.A.
2003-2004	Elementary	20	4	2	70.9	73.3	75.0	100.0
	Middle	17	12	5	52.4	54.4	52.9	60.0
	High	3	3	2	46.0	57.2	33.3	50.0
	Ungraded	0	0	0	N.A.	N.A.	N.A.	N.A.
2004-2005	Elementary	20	4	2	73.4	75.0	85.0	100.0
	Middle	18	13	5	56.9	57.6	61.1	60.0
	High	2	2	1	28.5	24.7	0.0	0.0
	Ungraded	0	0	0	N.A.	N.A.	N.A.	N.A.

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

[*] Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over-representing those schools who enrolled a larger number of students. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP. N.A. = Not available because no schools responded to this category.

Table 2-2 (accompanying Exhibit 2-Design B)
(Schools Reporting Any Year)

MATHEMATICS

	Grade span	No. schools	No. districts	No. MSPs	Avg. percent proficient[*]		Percent of MSPs attaining 50 percent proficient	
					Per school	Per MSP	Schools	MSPs
2002-2003	**Elementary**	89	16	5	57.9	65.6	64.0	80.0
	Middle	30	25	7	46.3	50.5	43.3	57.1
	High	10	10	5	42.1	50.5	40.0	40.0
	Ungraded	0	0	0	N.A.	N.A.	N.A.	N.A.
2003-2004	**Elementary**	319	68	16	52.9	55.9	57.4	62.5
	Middle	227	85	21	38.4	44.9	31.7	42.9
	High	212	92	21	41.3	49.2	38.7	38.1
	Ungraded	5	4	1	38.6	36.6	40.0	0.0
2004-2005	**Elementary**	498	98	21	65.4	62.5	78.3	71.4
	Middle	279	132	26	52.1	53.3	53.4	61.5
	High	263	134	23	51.1	52.2	50.6	60.9
	Ungraded	10	6	3	30.5	30.7	20.0	0.0

SCIENCE

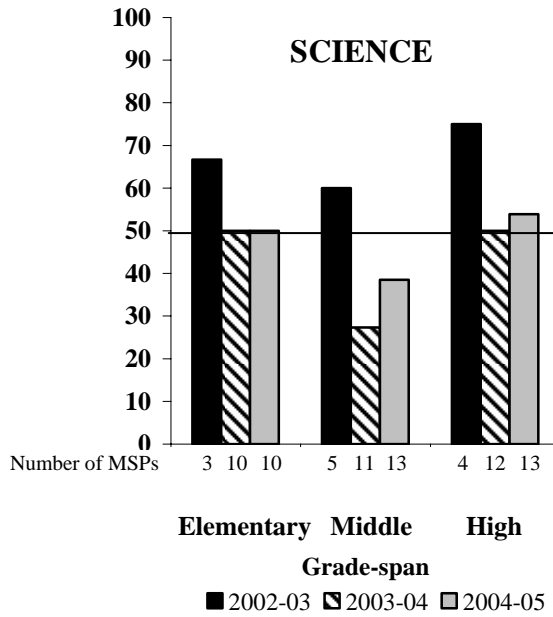|	Grade span	No. schools	No. districts	No. MSPs	Avg. percent proficient[*]		Percent of MSPs attaining 50 percent proficient	
					Per school	Per MSP	Schools	MSPs
2002-2003	**Elementary**	23	5	3	63.5	58.9	60.9	66.7
	Middle	21	16	5	49.3	53.1	52.4	60.0
	High	6	6	4	57.8	65.8	66.7	75.0
	Ungraded	0	0	0	N.A.	N.A.	N.A.	N.A.
2003-2004	**Elementary**	135	41	10	34.2	39.9	22.2	50.0
	Middle	96	46	11	40.5	38.6	33.3	27.3
	High	129	58	12	48.4	53.3	52.7	50.0
	Ungraded	5	4	1	30.3	30.6	20.0	0.0
2004-2005	**Elementary**	172	43	10	43.7	49.3	39.5	50.0
	Middle	148	81	13	51.5	49.0	54.1	38.5
	High	182	89	13	51.7	52.8	52.8	53.9
	Ungraded	6	5	2	40.3	54.7	33.3	50.0

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

[*] Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over-representing those schools who enrolled a larger number of students. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.
N.A. = Not available because no schools responded to this category.

Exhibit 3

**Student Achievement Trends,
Taking MSPs' Scoping into Account**

**Design A:
Schools Reporting All Three Years**
(also see Table 3-1)

**Design B:
Schools Reporting Any Year**
(also see Table 3-2)
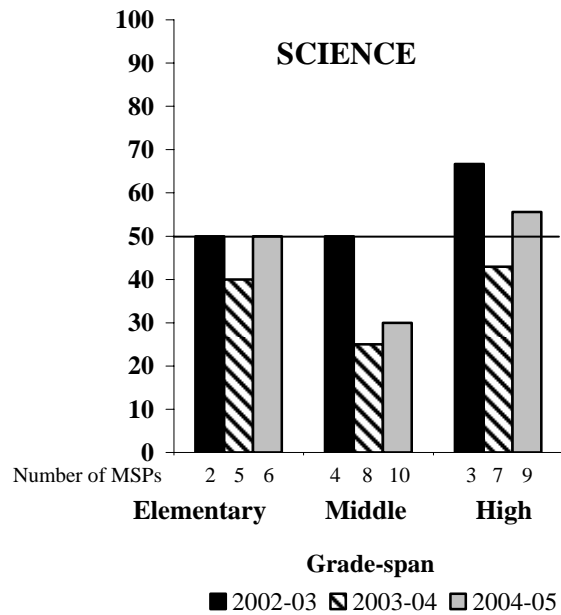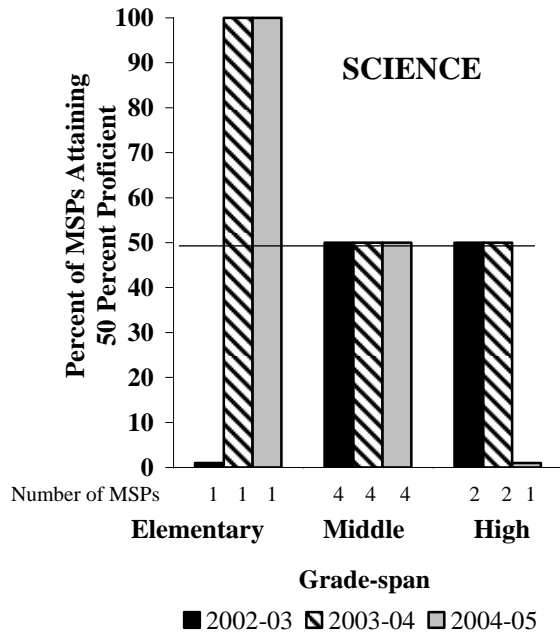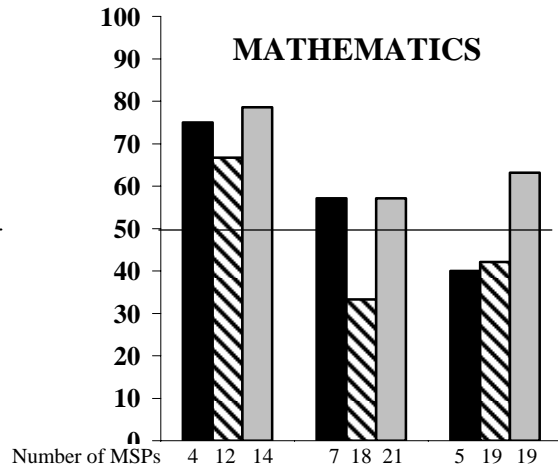
Table 3-1 (accompanying Exhibit 3-Design A)
(Schools Reporting All Three Years)

MATHEMATICS

	Grade span	No. schools	No. districts	No. MSPs	Avg. percent proficient[*]		Percent of MSPs attaining 50 percent proficient	
					Per school	Per MSP	Schools	MSPs
2002-2003	Elementary	79	13	3	56.9	69.4	63.3	100.0
	Middle	25	20	7	48.7	52.1	44.0	57.1
	High	8	8	4	33.7	28.7	25.0	0.0
	Ungraded	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A
2003-2004	Elementary	79	13	3	64.1	75.3	74.7	100.0
	Middle	25	20	7	52.7	55.1	52.0	57.1
	High	8	8	4	50.5	47.3	62.5	50.0
	Ungraded	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2004-2005	Elementary	79	13	3	73.7	82.0	92.4	100.0
	Middle	26	21	7	52.4	51.6	61.5	71.4
	High	7	7	4	49.4	45.1	57.1	50.0
	Ungraded	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

SCIENCE

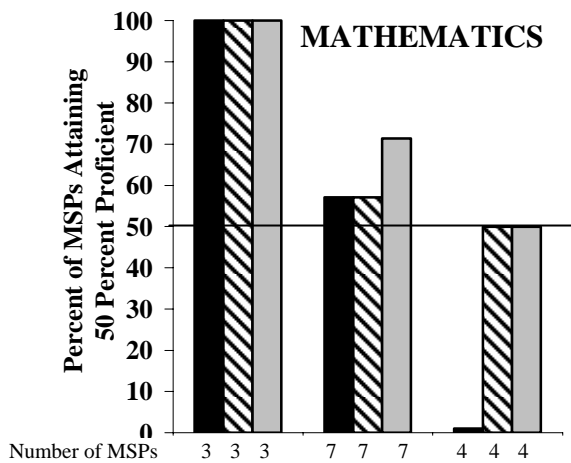|	Grade span	No. schools	No. districts	No. MSPs	Avg. percent Proficient*		Percent of MSPs attaining 50 percent proficient	
					Per school	Per MSP	Schools	MSPs
2002-2003	Elementary	11	2	1	52.4	49.9	36.4	0.0
	Middle	14	10	4	43.2	44.8	50.0	50.0
	High	3	3	2	44.4	56.7	33.3	50.0
	Ungraded	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2003-2004	Elementary	11	2	1	56.6	57.8	54.6	100.0
	Middle	14	10	4	44.4	45.4	42.9	50.0
	High	3	3	2	46.0	57.2	33.3	50.0
	Ungraded	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2004-2005	Elementary	11	2	1	57.8	57.3	72.7	100.0
	Middle	15	11	4	49.6	48.7	53.3	50.0
	High	2	2	1	28.5	24.7	0.0	0.0
	Ungraded	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

[*] Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over-representing those schools who enrolled a larger number of students. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.

N.A. = Not available because no schools responded to this category.

Table 3-2 (accompanying Exhibit 3-Design B)
(Schools Reporting Any Year)

MATHEMATICS

	Grade span	No. schools	No. districts	No. MSPs	Avg. percent proficient*		Percent of MSPs attaining 50 percent proficient	
					Per school	Per MSP	Schools	MSPs
2002-2003	Elementary	83	15	4	55.8	60.0	61.5	75.0
	Middle	30	25	7	46.3	50.5	43.3	57.1
	High	10	10	5	42.1	50.5	40.0	40.0
	Ungraded	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2003-2004	Elementary	227	41	12	50.6	57.3	53.7	66.7
	Middle	180	58	18	33.3	41.8	25.6	33.3
	High	164	71	19	39.9	49.3	40.2	42.1
	Ungraded	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2004-2005	Elementary	359	61	14	66.3	65.8	81.1	78.6
	Middle	216	99	21	50.6	52.7	51.4	57.1
	High	209	110	19	52.2	51.9	51.7	63.2
	Ungraded	2	1	1	47.0	42.4	50.0	0.0

SCIENCE

	Grade span	No. schools	No. districts	No. MSPs	Avg. percent proficient*		Percent of MSPs attaining 50 percent proficient	
					Per school	Per MSP	Schools	MSPs
2002-2003	Elementary	14	3	2	51.6	47.4	35.7	50.0
	Middle	18	14	4	41.9	42.9	44.4	50.0
	High	5	5	3	52.4	59.6	60.0	66.7
	Ungraded	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2003-2004	Elementary	107	30	5	28.4	31.2	14.0	40.0
	Middle	87	41	8	39.8	38.0	32.2	25.0
	High	113	44	7	44.9	45.8	48.7	42.9
	Ungraded	5	4	1	30.3	30.6	20.0	0.0
2004-2005	Elementary	130	36	6	40.2	47.2	34.6	50.0
	Middle	128	71	10	50.9	43.6	53.1	30.0
	High	151	76	9	51.5	51.9	53.6	55.6
	Ungraded	6	5	2	40.3	54.7	33.3	50.0

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

* Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over-representing those schools who enrolled a larger number of students. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.

N.A. = Not available because no schools responded to this category.

Exhibit 4

**Student Achievement Trends,
Taking MSPs' Participation into Account**

Design A: **Schools Reporting All Three Years** (also see Table 4-1)	**Design B:** **Schools Reporting Any Year** (also see Table 4-2)
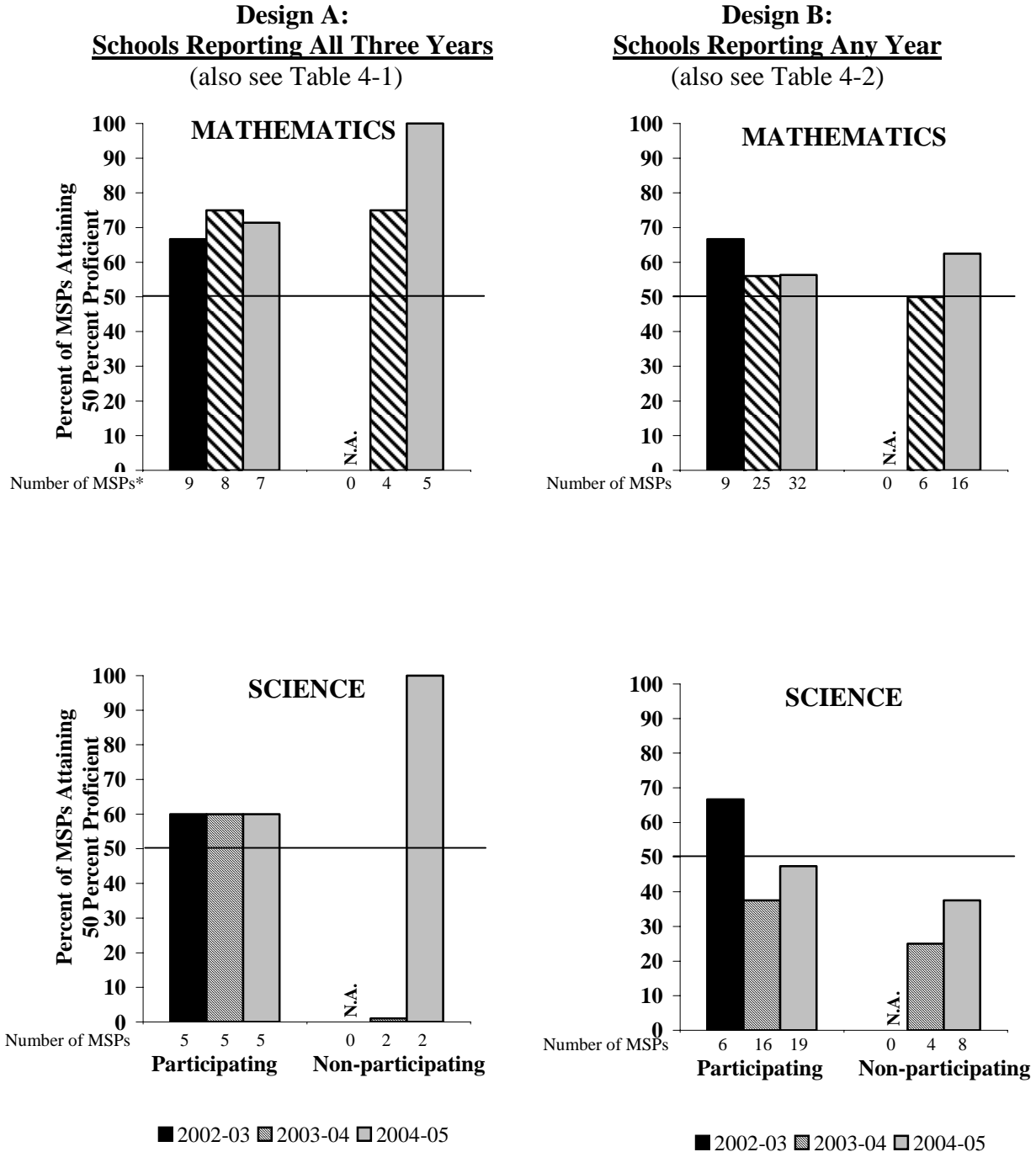
* The same MSP may appear as both "participating" and "non-participating," depending upon whether its schools were reporting that they were participating or non-participating. Therefore, an MSP would meet the "percent of MSPs attaining 50 percent proficient" criterion if 50 percent or more of its students in the participating schools have attained proficiency, but the same MSP also could have met the counterpart criterion if 50 percent or more of its students in its non-participating schools had attained proficiency.

N.A. = Not available because no schools responded to this category.

Table 4-1 (accompanying Exhibit 4-Design A)
(Schools Reporting All Three Years)

MATHEMATICS

	Grade span	Participating	No. schools	No. districts	No. MSPs	Avg. percent proficient[*]		Percent of MSPs attaining 50 percent proficiency	
						Per school	Per MSP	Schools	MSPs
2002-2003	**Elementary**	**Yes**	85	14	4	59.1	74.0	64.7	100.0
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Middle	**Yes**	25	20	7	48.7	52.1	44.0	57.1
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	High	**Yes**	8	8	4	33.7	28.7	25.6	0.0
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Ungraded	**Yes**	0	0	0	N.A.	N.A.	N.A.	N.A.
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Participating		118	34	9	55.2	58.0	57.6	66.7
	Non-participating		0	0	0	N.A.	N.A.	N.A.	N.A.
2003-2004	**Elementary**	**Yes**	80	14	4	64.9	76.9	75.0	100.0
		No	5	1	1	82.3	82.6	100.0	100.0
	Middle	**Yes**	22	17	6	50.1	52.5	45.5	50.0
		No	3	3	2	71.8	69.2	100.0	100.0
	High	**Yes**	6	6	3	57.9	52.0	83.3	66.7
		No	2	2	2	28.5	28.5	0.0	0.0
	Ungraded	**Yes**	0	0	0	N.A.	N.A.	N.A.	N.A.
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Participating		108	30	8	61.5	60.3	69.4	75.0
	Non-participating		10	6	4	68.4	66.6	80.0	75.0
2004-2005	**Elementary**	**Yes**	75	13	3	73.2	81.6	92.0	100.0
		No	10	4	4	86.2	85.9	100.0	100.0
	Middle	**Yes**	23	19	6	50.3	49.2	52.2	66.7
		No	3	3	2	67.9	67.5	100.0	100.0
	High	**Yes**	6	6	3	56.4	57.7	66.7	66.7
		No	1	1	1	7.1	7.1	0.0	0.0
	Ungraded	**Yes**	0	0	0	N.A.	N.A.	N.A.	N.A.
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Participating		104	30	7	67.2	57.4	81.7	71.4
	Non-participating		14	8	5	76.6	78.0	92.9	100.0

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

* Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over representing those schools who reported more student achievement data than others. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.

N.A. = Not available because no schools responded to this category.

(Table 4-1 continued)

Table 4-1 (accompanying Exhibit 4-Design A)
(Schools Reporting All Three Years)

SCIENCE

	Grade span	Participating	No. schools	No. districts	No. MSPs	Avg. percent proficient[*]		Percent of MSPs attaining 50 percent proficiency	
						Per school	Per MSP	Schools	MSPs
2002-2003	**Elementary**	**Yes**	20	4	2	20	4	65.0	65.7
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Middle	**Yes**	17	12	5	17	12	58.8	52.1
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	High	**Yes**	3	3	2	3	3	33.3	44.4
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Ungraded	**Yes**	0	0	0	N.A.	N.A.	N.A.	N.A.
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
		Participating	40	16	5	58.3	52.2	60.0	60.0
		Non-participating	0	0	0	N.A.	N.A.	N.A.	N.A.
2003-2004	**Elementary**	**Yes**	20	4	2	70.9	73.3	75.0	100.0
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Middle	**Yes**	16	11	5	53.1	57.6	56.3	60.0
		No	1	1	1	40.9	40.9	0.0	0.0
	High	**Yes**	2	2	2	57.1	57.1	50.0	50.0
		No	1	1	1	23.9	23.9	0.0	0.0
	Ungraded	**Yes**	0	0	0	N.A.	N.A.	N.A.	N.A.
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
		Participating	38	15	5	62.7	56.7	65.8	60.0
		Non-participating	2	2	2	32.4	32.4	0.0	0.0
2004-2005	**Elementary**	**Yes**	18	4	2	73.2	74.9	83.3	100.0
		No	2	2	2	75.6	75.6	100.0	100.0
	Middle	**Yes**	17	13	5	54.8	57.7	58.8	60.0
		No	1	1	1	93.4	93.4	100.0	100.0
	High	**Yes**	2	2	1	28.5	24.7	0.0	0.0
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Ungraded	**Yes**	0	0	0	N.A.	N.A.	N.A.	N.A.
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
		Participating	37	16	5	62.3	55.7	67.6	60.0
		Non-participating	3	3	2	81.5	75.7	100.0	100.0

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

* Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over representing those schools who reported more student achievement data than others. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.
N.A. = Not available because no schools responded to this category.

Table 4-2 (accompanying Exhibit 3-Design B)
(Schools Reporting Any Years)

MATHEMATICS

	Grade span	Participating	No. schools	No. districts	No. MSPs	Avg. percent proficient* Per school	Avg. percent proficient* Per MSP	Percent of MSPs attaining 50 percent proficiency Schools	Percent of MSPs attaining 50 percent proficiency MSPs
2002-2003	**Elementary**	**Yes**	89	16	5	57.9	65.6	62.9	80.0
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Middle	**Yes**	30	25	7	46.3	50.5	43.3	57.1
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	High	**Yes**	10	10	5	42.1	50.5	40.0	40.0
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Ungraded	**Yes**	0	0	0	N.A.	N.A.	N.A.	N.A.
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Participating		129	39	9	54.0	57.1	56.6	66.7
	Non-participating		0	0	0	N.A.	N.A.	N.A.	N.A.
2003-2004	**Elementary**	**Yes**	312	68	16	52.5	55.3	56.4	62.5
		No	7	2	2	71.9	63.0	85.7	50.0
	Middle	**Yes**	222	80	20	37.9	43.7	30.6	40.0
		No	5	5	3	60.5	51.4	80.0	66.7
	High	**Yes**	205	86	20	41.1	50.5	38.5	45.0
		No	7	7	5	46.5	53.8	28.6	40.0
	Ungraded	**Yes**	5	4	1	38.6	36.6	40.0	0.0
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Participating		744	145	25	44.9	48.9	43.7	56.0
	Non-participating		19	13	6	59.5	55.2	63.2	50.0
2004-2005	**Elementary**	**Yes**	461	96	21	65.7	63.0	79.0	71.4
		No	37	16	11	62.3	61.2	62.2	63.6
	Middle	**Yes**	258	126	26	52.2	53.1	51.9	61.5
		No	21	14	8	51.1	52.6	52.4	62.5
	High	**Yes**	250	129	22	51.4	54.4	50.4	59.1
		No	13	11	9	46.4	40.0	53.9	44.4
	Ungraded	**Yes**	9	6	3	29.3	30.4	22.2	0.0
		No	1	1	1	41.4	41.4	0.0	0.0
	Participating		978	210	32	58.1	53.3	64.0	56.3
	Non-participating		72	35	16	55.9	55.2	56.9	62.5

Source: MSP-MIS K-12 District Survey (Item 7g) (Date files received: 6/15/06, 8/22/06)

* Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over representing those schools who reported more student achievement data than others. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.
N.A. = Not available because no schools responded to this category.

(Table 4-2 continued)

Table 4-2 (accompanying Exhibit 3-Design B)
(Schools Reporting Any Years)

SCIENCE

	Grade span	Participating	No. schools	No. districts	No. MSPs	Avg. percent proficient*		Percent of MSPs attaining 50 percent proficiency	
						Per school	Per MSP	Schools	MSPs
2002-2003	**Elementary**	**Yes**	23	5	3	63.5	58.9	60.9	66.7
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Middle	**Yes**	21	16	5	49.3	53.1	52.4	60.0
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	High	**Yes**	6	6	4	57.8	65.8	66.7	75.0
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Ungraded	**Yes**	0	0	0	N.A.	N.A.	N.A.	N.A.
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
		Participating	50	22	6	56.8	53.8	58.0	66.7
		Non-participating	0	0	0	N.A.	N.A.	N.A.	N.A.
2003-2004	**Elementary**	**Yes**	135	41	10	34.2	39.9	21.5	50.0
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
	Middle	**Yes**	94	44	11	40.5	40.2	33.0	27.3
		No	2	2	2	38.1	38.1	0.0	0.0
	High	**Yes**	127	56	11	48.2	49.5	52.0	45.5
		No	2	2	2	60.8	60.8	50.0	50.0
	Ungraded	**Yes**	5	4	1	30.3	30.6	20.0	0.0
		No	0	0	0	N.A.	N.A.	N.A.	N.A.
		Participating	361	91	16	40.7	44.1	35.2	37.5
		Non-participating	4	4	4	49.4	49.4	25.0	25.0
2004-2005	**Elementary**	**Yes**	154	42	10	44.0	50.4	37.7	50.0
		No	18	9	6	41.2	51.3	44.4	66.7
	Middle	**Yes**	139	80	13	52.5	50.0	56.1	46.2
		No	9	5	4	34.7	44.5	11.1	25.0
	High	**Yes**	177	86	13	51.7	52.8	52.0	53.9
		No	5	5	3	53.6	49.3	60.0	33.3
	Ungraded	**Yes**	5	5	2	41.4	54.7	40.0	50.0
		No	1	1	1	34.9	34.9	0.0	0.0
		Participating	475	137	19	49.3	48.5	48.4	47.4
		Non-participating	33	16	8	41.1	47.3	36.4	37.5

Source: MSP-MIS K-12 District Survey (Item 7g) (Date files received: 6/15/06, 8/22/06)

* Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over representing those schools who reported more student achievement data than others. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.
N.A. = Not available because no schools responded to this category.

Exhibit 5

**Three Criteria for Defining a School's Participation
in an MSP's Activities**

30 percent or more of targeted students were engaged in a challenging mathematics or science curriculum that was initiated or revised with MSP support

30 percent or more of targeted students participated in a MSP-supported academic enrichment activity

30 percent or more of targeted teachers participated in 30 or more hours of MSP-sponsored activities
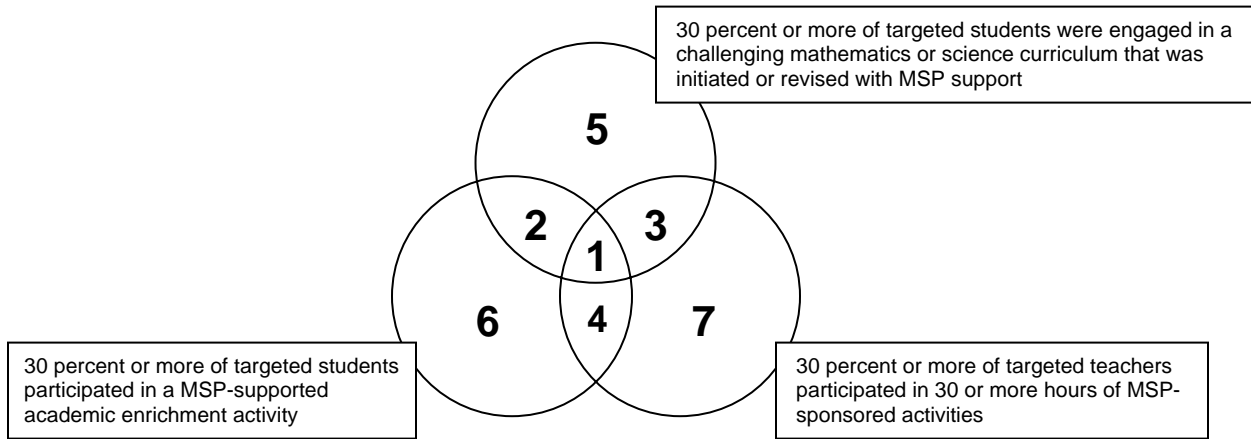
Exhibit 6

Student Achievement Trends,
Taking MSPs' Teacher Participation into Account

Design A:
Schools Reporting All Three Years
(also see Table 6-1)

Design B:
Schools Reporting Any Year
(also see Table 6-2)
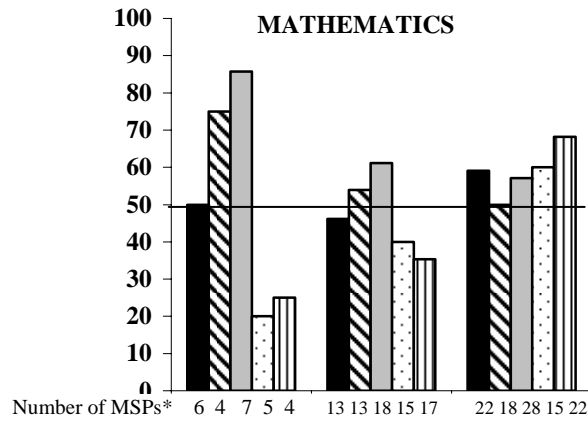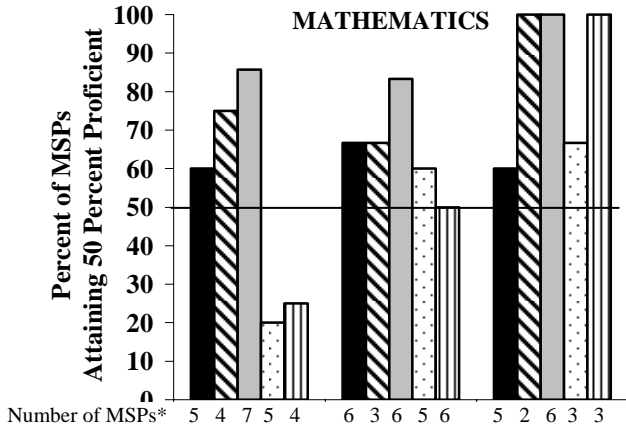
MATHEMATICS

Number of MSPs* 5 4 7 5 4   6 3 6 5 6   5 2 6 3 3

MATHEMATICS

Number of MSPs* 6 4 7 5 4   13 13 18 15 17   22 18 28 15 22

SCIENCE

Number of MSPs* 4 1 2 1 2   4 0 2 2 2   3 1 1 2 2

2002-2003   2003-2004   2004-2005
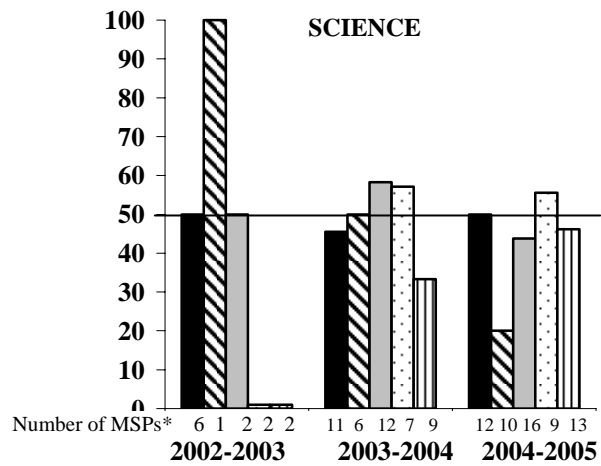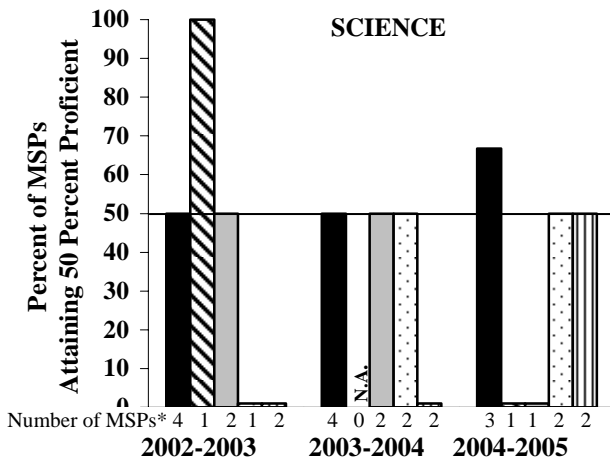

SCIENCE

Number of MSPs* 6 1 2 2 2   11 6 12 7 9   12 10 16 9 13

2002-2003   2003-2004   2004-2005

Percent Participating:
■ Less than 20 percent   ◨ 20-39 percent
▨ 40-59 percent   ☐ 50-79 percent
▥ 80 or more percent

Percent Participating:
■ Less than 20 percent   ◨ 20-39 percent
▨ 40-59 percent   ☐ 50-79 percent
▥ 80 or more percent

N.A. = Not available because no schools responded to this category.

Table 6-1 (accompanying Exhibit 6-Design A)
(Schools Reporting All Three Years)

MATHEMATICS

Percent teachers participating[1]	No. schools	No. districts	No. MSPs	Avg. percent proficient[3]		Percent of MSPs attaining 50 percent proficient	
				Per school	Per MSP	Schools	MSPs
2002-2003							
Less than 20	16	7	5	71.1	45.9	87.5	60.0
20-39	9	6	4	55.6	59.3	55.6	75.0
40-59	57	18	7	57.9	60.4	64.9	85.7
60-79	24	7	5	37.3	42.1	20.8	20.0
80+	12	6	4	56.1	37.7	58.3	25.0
Missing[2]	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
TOTAL	118	34	9	55.2	58.0	57.6	66.7
2003-2004							
Less than 20	20	7	6	74.7	53.3	90.0	66.7
20-39	3	3	3	65.1	65.1	66.7	66.7
40-59	57	15	6	63.1	65.6	75.4	83.3
60-79	25	9	5	47.9	51.7	48.0	60.0
80+	13	7	6	65.0	52.1	61.5	50.0
Missing	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
TOTAL	118	34	9	62.1	63.2	70.3	77.8
2004-2005							
Less than 20	80	16	5	69.2	55.3	85.0	60.0
20-39	2	2	2	73.7	73.7	100.0	100.0
40-59	15	7	6	73.9	73.5	93.3	100.0
60-79	6	6	3	60.5	60.2	66.7	66.7
80+	8	8	3	74.6	67.5	100.0	100.0
Missing	7	5	2	44.0	41.2	28.6	50.0
TOTAL	118	34	9	68.3	61.7	83.1	77.8

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

[1]Calculated by dividing the number of participating teachers by the total number of teachers at the school, multiplied by 100. Self-contained teachers appear in both the MATHEMATICS and SCIENCE tables.

[2] Contains schools that reported student achievement but did not report either the total number of teachers or the number of participating teachers.

[3]Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over representing those schools who reported more student achievement data than others. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.

N.A. = Not available because no schools responded to this category.

(Table 6-1 continued)

Table 6-1 (accompanying Exhibit 6-Design A)
(Schools Reporting All Three Years)

SCIENCE

Percent teachers participating[1]	No. schools	No. districts	No. MSPs	Avg. percent proficient[3]		Percent of MSPs attaining 50 percent proficient	
				Per school	Per MSP	Schools	MSPs
2002-2003							
Less than 20	15	7	4	70.7	56.2	80.0	50.0
20-39	3	2	1	53.5	54.2	66.7	100.0
40-59	7	5	2	49.3	37.8	57.1	50.0
60-79	10	2	1	46.2	37.7	30.0	0.0
80+	2	2	2	11.3	11.3	0.0	0.0
Missing	3	2	1	93.8	94.1	100.0	100.0
TOTAL	40	16	5	58.3	52.2	60.0	60.0
2003-2004							
Less than 20	14	7	4	76.5	54.7	78.6	50.0
20-39	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
40-59	8	4	2	60.7	37.6	75.0	50.0
60-79	12	4	2	49.1	42.2	41.7	50.0
80+	3	3	2	10.5	13.9	0.0	0.0
Missing	3	2	1	89.8	90.6	100.0	100.0
TOTAL	40	16	5	61.2	53.2	62.5	60.0
2004-2005							
Less than 20	23	7	3	69.5	60.6	78.3	66.7
20-39	1	1	1	30.9	30.9	0.0	0.0
40-59	1	1	1	1.6	1.6	0.0	0.0
60-79	2	2	2	46.7	46.7	50.0	50.0
80+	3	3	2	49.5	35.5	66.7	50.0
Missing	10	7	3	67.7	65.8	70.0	66.7
TOTAL	40	16	5	63.8	55.7	70.0	60.0

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

[1]Calculated by dividing the number of participating teachers by the total number of teachers at the school, multiplied by 100. Self-contained teachers appear in both the MATHEMATICS and SCIENCE tables.
[2]Contains schools that reported student achievement but did not report either the total number of teachers or the number of participating teachers.
[3]Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over representing those schools who reported more student achievement data than others. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.
N.A. = Not available because no schools responded to this category.

Table 6-2 (accompanying Exhibit 6-Design B)
(Schools Reporting Any Year)

MATHEMATICS

Percent teachers participating[1]	No. schools	No. districts	No. MSPs	Avg. percent proficient[3]		Percent of MSPs attaining 50 percent proficient	
				Per school	Per MSP	Schools	MSPs
2002-2003							
Less than 20	22	9	6	63.6	45.8	77.3	50.0
20-39	10	7	4	56.3	58.3	60.0	75.0
40-59	60	19	7	56.9	60.8	63.3	85.7
60-79	25	8	5	36.5	41.1	20.0	20.0
80+	12	6	4	56.1	37.7	58.3	25.0
Missing[2]	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
TOTAL	129	39	9	54.0	57.1	56.6	66.7
2003-2004							
Less than 20	151	46	13	49.6	49.2	51.0	46.2
20-39	37	21	13	46.2	47.1	43.2	53.9
40-59	167	54	18	54.6	55.5	59.3	61.1
60-79	99	41	15	45.5	51.2	37.4	40.0
80+	207	41	17	31.0	47.3	29.5	35.3
Missing	102	31	4	52.1	60.1	46.1	50.0
TOTAL	763	153	25	45.3	48.9	44.2	56.0
2004-2005							
Less than 20	348	86	22	59.7	52.5	68.4	59.1
20-39	62	32	18	56.7	51.6	58.1	50.0
40-59	269	96	28	56.2	51.5	59.5	57.1
60-79	82	45	15	59.8	58.2	65.9	60.0
80+	138	57	22	63.4	58.7	73.9	68.2
Missing	151	54	11	51.6	58.9	51.0	72.7
TOTAL	1050	217	32	58.0	53.5	63.5	59.4

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

[1]Calculated by dividing the number of participating teachers by the total number of teachers at the school, multiplied by 100. Self-contained teachers appear in both the MATHEMATICS and SCIENCE tables.

[2]Contains schools that reported student achievement but did not report either the total number of teachers or the number of participating teachers.

[3]Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over representing those schools who reported more student achievement data than others. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.

N.A. = Not available because no schools responded to this category.

(Table 6-2 continued)

Table 6-2 (accompanying Exhibit 6-Design B)
(Schools Reporting Any Year)

SCIENCE

Percent teachers participating[1]	No. schools	No. districts	No. MSPs	Avg. percent proficient[3]		Percent of MSPs attaining 50 percent proficient	
				Per school	Per MSP	Schools	MSPs
2002-2003							
Less than 20	18	10	6	64.8	50.3	72.2	50.0
20-39	5	2	1	50.3	51.3	60.0	100.0
40-59	9	6	2	50.5	35.1	55.6	50.0
60-79	11	3	2	46.0	40.7	27.3	0.0
80+	2	2	2	11.3	11.3	0.0	0.0
Missing[2]	5	3	2	88.1	81.4	100.0	100.0
TOTAL	50	22	6	56.8	53.8	58.0	66.7
2003-2004							
Less than 20	129	39	11	33.3	40.6	22.5	45.5
20-39	24	11	6	49.6	51.3	50.0	50.0
40-59	84	38	12	54.5	55.5	54.8	58.3
60-79	31	13	7	52.6	53.9	48.4	57.1
80+	62	20	9	24.0	44.5	19.4	33.3
Missing	35	17	6	48.9	46.8	40.0	33.3
TOTAL	365	94	17	40.8	46.3	35.1	41.2
2004-2005							
Less than 20	173	50	12	43.4	50.9	38.2	50.0
20-39	26	18	10	35.6	39.8	15.4	20.0
40-59	100	51	16	48.0	48.6	46.0	43.8
60-79	41	22	9	58.5	40.2	73.2	55.6
80+	92	44	13	56.7	45.1	63.0	46.2
Missing	76	38	9	51.9	51.9	50.0	55.6
TOTAL	508	138	19	48.8	47.9	47.6	47.4

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

[1]Calculated by dividing the number of participating teachers by the total number of teachers at the school, multiplied by 100. Self-contained teachers appear in both the MATHEMATICS and SCIENCE tables.

[2]Contains schools that reported student achievement but did not report either the total number of teachers or the number of participating teachers.

[3]Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over representing those schools who reported more student achievement data than others. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.

Exhibit 7

**Student Achievement Trends,
by Cohort and Years Reporting**
(also see table 7)

MATHEMATICS

SCIENCE
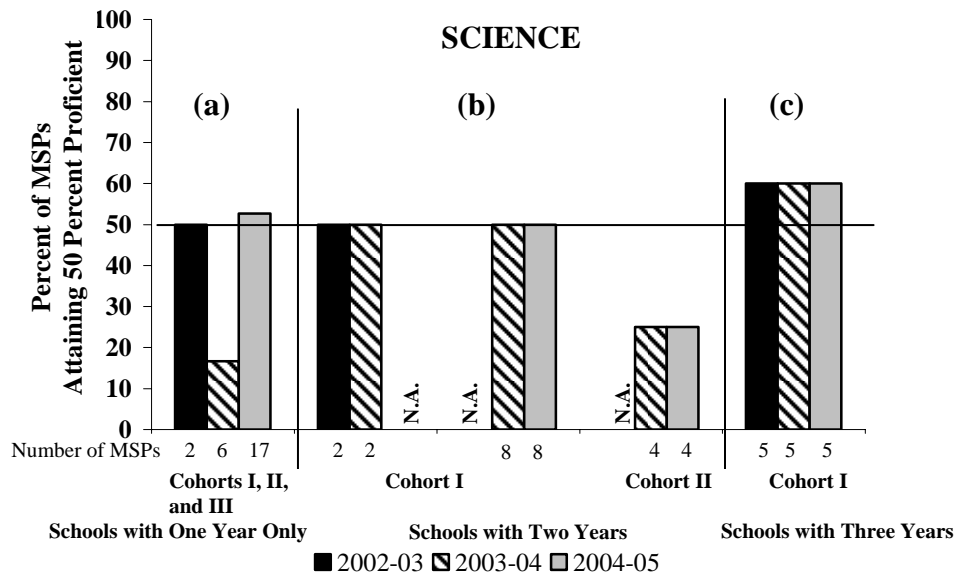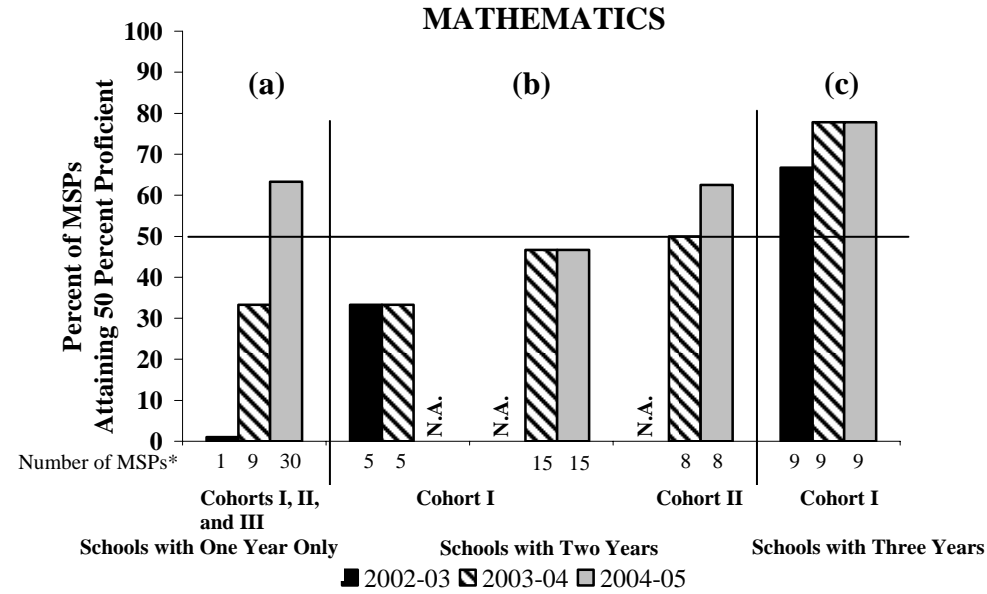
* The same MSP may appear as reporting one, two, or three years, depending upon the years reported by its schools. Therefore, an MSP would meet the "percent of MSPs attaining 50 percent proficient" criterion if 50 percent or more of its students in the schools with one year only have attained proficiency, but the same MSP also could have met the counterpart criterion for schools with two years or schools with three years if 50 percent or more of their students attained proficiency.

N.A. = Not applicable.

Table 7 (accompanying Exhibit 7)

MATHEMATICS

Cohort	Years Reporting		No. schools	No. districts	No. MSPs	Avg. percent proficient [*]		Percent of MSPs attaining 50 percent proficient	
						Per school	Per MSP	Schools	MSPs
2002-03									
Cohort I	**Only One Year**		1	1	1	20.6	20.6	0.0	0.0
	Two Years Only 2002-03 and 2003-04		8	5	3	42.4	44.2	50.0	33.3
	All Three Years		118	34	9	55.2	58.0	57.6	66.7
	Subtotal		127	38	9	54.1	57.7	56.7	66.7
2003-04									
Only One Year	**All Cohorts**		135	20	9	23.8	38.1	22.2	33.3
Two Years Only	**Cohort 1**	**2002-03 and 2003-04**	8	5	3	49.4	33.3	50.0	33.3
		2003-04 and 2004-05	192	60	15	48.8	46.7	43.2	46.7
	Cohort 2	**2003-04 and 2004-05**	310	56	8	46.0	50.0	44.2	50.0
All Three Years	**Cohort 1**		118	34	9	62.1	63.2	70.3	77.8
	Subtotal		763	153	25	45.3	48.9	44.2	56.0
2004-05									
Only One Year	**All Cohorts**		428	135	30	58.8	56.1	64.7	63.3
Two Years Only	**Cohort 1**	**2003-04 and 2004-05**	192	60	15	50.4	46.7	46.9	46.7
	Cohort 2	**2003-04 and 2004-05**	310	56	8	57.7	50.4	64.8	62.5
All Three Years	**Cohort 1**		118	34	9	68.3	61.7	83.1	77.8
	Subtotal		1048	216	32	58.0	53.6	63.6	59.4

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

[*] Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over-representing those schools who reported more student achievement data than others. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.

(Table 7 continued)

Table 7 (accompanying Exhibit 7)

SCIENCE

Cohort	Years Reporting		No. schools	No. districts	No. MSPs	Avg. percent proficient*		Percent of MSPs attaining 50 percent proficient	
						Per school	Per MSP	Schools	MSPs
2002-03									
Cohort I	**Only One Year**		2	2	2	57.4	57.4	50.0	50.0
	Two Years Only 2002-03 and 2003-04		3	3	2	45.1	46.0	66.7	50.0
	All Three Years		40	16	5	58.3	52.2	60.0	60.0
	Subtotal		45	20	6	57.4	53.8	60.0	66.7
2003-04									
Only One Year	**All Cohorts**		67	17	6	30.4	35.7	31.3	16.7
Two Years Only	**Cohort 1**	**2002-03 and 2003-04**	3	3	2	64.7	50.0	66.7	50.0
		2003-04 and 2004-05	108	28	8	43.5	50.0	49.1	50.0
	Cohort 2	**2003-04 and 2004-05**	147	36	4	37.6	25.0	18.4	25.0
All Three Years	**Cohort 1**		40	16	5	61.2	53.2	62.5	60.0
	Subtotal		365	94	17	40.8	46.3	35.1	41.2
2004-05									
Only One Year	**All Cohorts**		208	82	17	52.6	51.0	56.3	52.9
Two Years Only	**Cohort 1**	**2003-04 and 2004-05**	108	28	8	43.6	50.0	43.5	50.0
	Cohort 2	**2003-04 and 2004-05**	147	36	4	43.0	25.0	32.0	25.0
All Three Years	**Cohort 1**		40	16	5	63.8	55.7	70.0	60.0
	Subtotal		503	136	19	48.8	48.1	47.5	47.4

Source: MSP-MIS K-12 District Survey (Date files received: 6/15/06, 8/22/06)

*Average percent proficient is calculated at the school and MSP levels. The school-level average percentage is calculated to allow all responding schools to be equally represented, rather than over-representing those schools who reported more student achievement data than others. Similarly, the MSP average percentage proficient allows all MSPs to be equally represented, ignoring differences in the number of schools and districts reporting as part of a particular MSP.

References

Student Achievement from the MSP-MIS (Wave 1):

Dimitrov, Dimiter, "Initial Trends in MSP-Related Changes in Student Achievement with MIS Data (Wave 1 Data)," George Mason University, Fairfax, VA, January 25, 2006.

National Science Foundation, "NSF's Math and Science Partnerships Make the Grade," *Press Release 06-029*, Arlington, VA, February 2006.

Student Achievement from the MSP-MIS (Wave 1 and 2):

Dimitrov, Dimiter, "Initial Trends in MSP-Related Changes in Student Achievement with MIS Data (Wave 1 and 2 Data)," originally submitted to NSF in December 2006; *Peabody Journal of Education*, forthcoming

Dimitrov, Dimiter, "Initial Trends in MSP-Related Changes in Student Achievement With MIS Data—Addendum for Changes from Years 2003/04 to 2004/05 [For all available data and by cohorts I and II], George Mason University, Fairfax, VA, February 15, 2007.

National Science Foundation, "NSF's Math and Science Partnerships Demonstrate Continued Increases in Student Proficiency," *Press Release 07-005*, Arlington, VA, January 2007.

National Science Foundation, "Student Results Show Benefits of Math and Science Partnerships," *Press Release 07-080*, Arlington, VA, July 2007.

Other:

National Science Foundation, "MSP National Impact Report," Arlington, VA, January 2007.

Wong, Kenneth, and Edward Socha, "A Pilot Study to Identify Comparison Schools for MSP Participating Schools: Preliminary Findings on One Math/Science Partnership," *Peabody Journal of Education*, forthcoming.

Appendix

WORDING OF MSP-MIS QUESTIONNAIRE ITEMS*
REFERENCED IN THE PRESENT REPORT

Student Achievement:
   Item 7g (2002-04) (Item 11e (2004-05))**: Provide the following information about the number of students who took this assessment at [NAME OF SCHOOL] during the [INSERT SCHOOL YEAR] school year:**

   - *Number of students at this grade level taking assessment during the [INSERT SCHOOL YEAR] school year*

   - *Number of students taking assessment and scoring at or above proficient level*

School Participation in MSP Activities (categorical response):
   Item A (2002-05): Which of the following conditions apply to this school? (*check all that apply*)

   - *30 percent or more of targeted teachers participated in 30 or more hours of MSP-sponsored activities during the [INSERT SCHOOL YEAR] school year*

   - *30 percent or more of targeted students were engaged in a challenging mathematics or science curriculum that was initiated or revised with MSP support during the [INSERT SCHOOL YEAR] school year*

   - *30 percent or more of targeted students participated in a MSP-supported academic enrichment activity during the [INSERT SCHOOL YEAR] school year*

   - *None of the above conditions apply to this school for the [INSERT SCHOOL YEAR] school year*

School Participation in MSP Activities (numeric response):
   Item 1 (2002-05): Provide the following information about the TOTAL number of teachers in [NAME OF SCHOOL] at the beginning of the [INSERT SCHOOL YEAR] school year:

   Item 2 (2002-04) (Item 5 (2004-05))**: Using the definition for "participating teachers" below, provide the following information about the number of teachers in [NAME OF SCHOOL] that actively participated in your MSP during the [INSERT SCHOOL YEAR] school year:**

   Definition for "participating teachers": Those teachers who have participated in 30 or more hours of MSP-sponsored activities during a given school year. Examples include teachers who: 1) developed or delivered an MSP-sponsored activity to K-12 students or other teachers; 2) participated in an MSP-sponsored effort to revise math or science curriculum; 3) received MSP-sponsored professional development; and/or 4) took part in MSP-related learning communities.

   - *[Number of] math teachers*
   - *[Number of] science teachers*

_____

* All items are from the instrument, *K-12 District Survey for Comprehensive and Targeted MSPs* (some item numbers changed from year-to-year). The data for the MSP-MIS come from the responses to this as well as seven other survey instruments: 1) *Survey for Comprehensive and Targeted Partnership Projects*; 2) *Institution of Higher Education (IHE) Survey for Comprehensive and Targeted MSPs*; 3) *IHE Participant Survey*; 4) *Survey for Research, Evaluation, and Technical Assistance (RETA) Projects*; 5) *Survey for K-12 Institute Participants*; 6) *Survey for IHE Institute Participants*; and 7) *Survey for Institute Partnership Projects*. Thus, the MSP-MIS is an extremely large database.