

# Middle Grades Longitudinal Study of 2017-18 (MGLS:2017) Main Study First Follow-up (MS2) Tracking and Recruitment Revision and Operational Field Test Second Follow-up (OFT3)

OMB# 1850-0911 v.21

## Supporting Statement Part B

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Part B of this submission presents information on the collection of information employing statistical methods for the Middle Grades Longitudinal Study of 2017-18 (MGLS:2017) Main Study First Follow-up (MS2) Tracking and Recruitment and Operational Field Test Second Follow-up (OFT3). Preliminary background information and design changes for MS2 were approved in September 2018 (OMB# 1850-0911 v. 20). More detailed descriptions of MS2 data collection will be submitted in the mid-2019 (OMB# 1850-0911 v.22).

## **B.1 Universe, Sample Design, and Estimation**

The universe, sample design, and all aspects of the OFT Base Year (OFT1), OFT First Follow-up (OFT2), and Main Study Base Year (MS1) studies were fully described in previous clearance submissions (OMB# 1850-0911 v. 10-19). The update to this submission, approved in September 2018 (OMB# 1850-0911 v. 20), added information about OFT3 tracking and about a change in periodicity of and oversampling in the MS follow up data collection. In this document, the final plan for the sampling universe and design of MS2 tracking and recruitment are described.

MGLS:2017 MS1 data collection was conducted from January through August 2018 on a nationally representative sample of schools offering grade 6 instruction and a nationally representative sample of students enrolled in grade 6, including students whose primary Individualized Education Program (IEP) classification was Autism (AUT), Emotional Disturbance (EMN), or Specific Learning Disability (SLD) and who were being educated in an ungraded setting and were age-equivalent (aged 11 to 13) to grade 6 students.

MS1 employed a multi-stage sampling design with schools selected in the first stage and students selected, within schools, at the second stage. The school sample was selected using probability proportional to size sampling within school sampling strata. Students were selected from school enrollment lists collected in the fall of 2017 using simple random sampling within student sampling strata within schools.

The school frame was constructed from the 2013-14 Common Core of Data (CCD 2013-14) and the 2013-14 Private School Universe Survey (PSS 2013-14). The MS1 school population excluded the following types of schools that are included in the CCD and PSS:

- Department of Defense Education Activity schools and Bureau of Indian Education schools,
- alternative education schools, and
- special education schools.<sup>1</sup>

In addition, schools included in OFT1 were excluded from the sampling frame for the Main Study and, therefore, were not eligible for MS1 due to the OFT2 tracking and data collection activities that were conducted in parallel with MS1. The final set of schools that participated in OFT1 was not yet known at the time of initial sampling for MS1, and, therefore, the number of schools in the sampling frame for MS1 could not yet be precisely stated (it had been estimated at around 48,000 in an earlier package). It is now known that there are 48,376 schools that were eligible for MS1.

The sample design called for information on sixth-grade enrollment, overall and by race and ethnicity, and counts of students whose primary IEP designation is AUT, EMN, or SLD to be used in the sampling process. *EDFacts* data were used to determine, for each school in the sampling frame, the number of students between the ages of 11 and 13 whose primary IEP designation is AUT, EMN, or SLD. In order for schools to be sampled, sixth-grade enrollment, overall and by race and ethnicity, and counts of students whose primary IEP designation is AUT, EMN, or SLD must have been available.

There are some schools for which some of the necessary information was missing but imputation was used to include them in the sampling process; 2,971 of the 48,376 schools had sixth-grade enrollment or *EDFacts* focal disability counts imputed<sup>2</sup>. For some schools with missing data imputation is not advisable due to a concern that misestimating enrollment counts may give a higher probability of selection to these schools than warranted. For this reason, the following schools were excluded from the sampling frame:

- schools that reported overall sixth-grade enrollment but did not report enrollment by race and ethnicity (n=9), and
- schools that reported no sixth-grade enrollment<sup>3</sup> and reported having no enrolled students between the

<sup>1</sup> A special education school is a public elementary/secondary school that focuses on educating students with disabilities and adapts curriculum, materials, or instruction for the students served.

<sup>2</sup> Imputation was necessary in order to be able to include eligible schools in the sampling process, which helped ensure the sampling frame was more representative of the population of eligible schools. Imputation was used for grade 6 enrollment when grade 6 enrollment was missing. Imputation was used for focal disability counts when focal disability counts were missing. We note that schools in Wyoming and Iowa do not report to *EDFacts* so they would not be able to be represented in the MS1 sample without imputing focal disability counts. If both grade 6 enrollment and focal disability counts were missing, imputation was not used and these schools were excluded from the frame.

<sup>3</sup> Sixth-grade enrollment is reported as 0 or was not reported to the CCD 2013-14 or PS 2013-14.

ages of 11 and 13 in the three focal disability groups<sup>4</sup> or did not report information on students with disabilities to EDFacts (n=1,578).

The 45,528 schools with complete (non-imputed) information in the sampling frame were explicitly stratified by the cross-classification of the following characteristics:

- school type (public, Catholic, other private),
- region (Northeast, Midwest, South, West), and
- prevalence of students with disabilities (high/low).<sup>5</sup>

The prevalence indicator is defined using the number of students in two of the three focal disability groups noted above. Schools were classified as having a high prevalence of students with disabilities (i.e., high prevalence schools) if the total number of students whose primary IEP designation was AUT or EMN exceeded 17. The number of SLD students was not factored into the stratification process because the number of students classified as SLD generally far exceeds the number of students classified as either EMN or AUT. Factoring in the number of SLD students would have resulted in a threshold where schools above the threshold would have had very few EMN or AUT students. The number of SLD students was also excluded in the determination of high/low prevalence schools because it appears that sufficient numbers of SLD students would be included in the sample without oversampling. The threshold of 17 was determined by identifying the 95<sup>th</sup> percentile of the total number of students whose primary designation was AUT or EMN across all 45,528 schools.

Prior to selection of the school sample, schools were sorted by locale (city, suburban, town, rural), school configuration (PK/KG/1-06, PK/KG/1-08, PK/KG/1-12, 05-08, 06-08, other), median income of the ZIP code in which a school resides, and school size measure within each of the explicit school strata so that approximate proportionality across locales, school configurations, and median ZIP code incomes was preserved. The purpose of including school size measure in the sort was to enable the ability to freshen the school sample. The school sample was freshened in the third quarter of 2017, before the start of Base Year data collection, because schools were initially selected about a year before the start of data collection to allow sufficient time for recruitment. New schools were identified through review of preliminary versions of the 2015-2016 CCD and PSS files. Newly identified schools were inserted into the sorted sampling frame in such a fashion as to preserve the original sort ordering. Using a half-open interval rule,<sup>6</sup> we identified schools to be added to the initial school sample.

The MS1 sample was designed to account for declining response rates observed in recent school-based NCES longitudinal studies, the recruitment experience of the field tests, and the desire to achieve 900 participating schools and targeting a student sample yield of 29 students per school in MS1. To be conservative, the MS1 sampling plan was designed to be flexible so that the study could achieve sample size targets even if eligibility and response rates were lower than anticipated. The school sampling process was designed to achieve 900 participating schools (740 public, 80 Catholic, and 80 other private) distributed over 16 school sampling strata. We selected 3,710 schools using stratified probability proportional to size sampling, from which an initial simple random sample of 1,236 schools was selected within school strata. This subset of 1,236 schools comprised the initial set of schools that were released for recruitment in January of 2017. The remaining schools comprised a reserve sample from which 198 schools were sampled and pursued for recruitment in October of 2017. As the school sample was selected from a sampling frame constructed from the 2013-2014 Common Core of Data (CCD) and Private School Universe Survey (PSS) data, a sample freshening process using the 2015-2016 CCD and PSS data was employed to improve the coverage of the MGLS:2017 school sample. This sample freshening process added 95 schools to the MGLS:2017 school sample. Thus a total of 1,529 schools were sampled and pursued for recruitment for MS1.

The numbers of participating schools among the initial set of 1,236 released schools were monitored by school stratum and a decision was made in October of 2017 to select 198 schools from the reserve in order to increase the number of participating schools. The desired numbers of participating schools by the margins of the school stratification characteristics are shown in table 1.

**Table 1. MS1 School Participation Goals, by School Stratification Characteristics**

			<b>Public</b>	<b>Catholic</b>	<b>Other private</b>	<b>Total</b>
<b>Total</b>			<b>740</b>	<b>80</b>	<b>80</b>	<b>900</b>
<b>Region</b>		Northeast	122	19	16	157
		Midwest	162	28	15	205

<sup>4</sup> A school reports zero students or does not report the number of students in any of the three focal disability groups.

<sup>5</sup> For sampling purposes, all private schools were classified as low prevalence schools because private schools do not report to EDFacts.

<sup>6</sup> See, for example, Kish (1965.) Survey Sampling, John Wiley & Sons, Inc. p.56.

			Public	Catholic	Other private	Total
		South	278	19	33	330
		West	178	14	16	208
<b>Prevalence of students with disabilities</b>		High	128	NA	NA	128
		Low	612	80	80	772

NOTE: NA: Not Applicable. No explicit participation goals are established for Catholic and Other private schools with these two grade configurations. Catholic and Other private schools with school grade configurations of 05-08 and 06-08 are classified as Other configuration for the purposes of sampling. Catholic and Other private schools are all classified as Low prevalence, for purposes of sampling, as no focal disability counts are available.

The 16 school strata along with the corresponding stratum-specific participation goals, frame counts, total selected school sample (n=3,710), initial school sample (n=1,236), and reserve sample (n=2,474) are shown in table 2.

**Table 2. MS1 School Sample Allocation**

School Type	Census Region	Prevalence	Participation Goals	School Frame Count	Total Selected School Sample	Initial School Sample	School Reserve Sample
<b>Total</b>	-	-	<b>900</b>	<b>48,376</b>	<b>3,710</b>	<b>1,236</b>	<b>2,474</b>
Public	Northeast	High	17	245	70	23	47
Public	Northeast	Low	105	4,965	433	144	289
Public	Midwest	High	35	445	144	48	96
Public	Midwest	Low	127	8,167	524	175	349
Public	South	High	50	578	206	69	137
Public	South	Low	228	9,569	940	313	627
Public	West	High	26	290	107	36	71
Public	West	Low	152	9,554	627	209	418
Catholic	Northeast	Low	19	1,069	78	26	52
Catholic	Midwest	Low	28	1,697	115	38	77
Catholic	South	Low	19	970	78	26	52
Catholic	West	Low	14	770	58	19	39
Other Private	Northeast	Low	16	2,060	66	22	44
Other Private	Midwest	Low	15	2,277	62	21	41
Other Private	South	Low	33	3,768	136	45	91
Other Private	West	Low	16	1,952	66	22	44

The size measure used for the probability proportional to size selection of 3,710 schools was constructed using the overall sampling rates for students in the following seven student categories:

- Autism (AUT),
- Emotional Disturbance (EMN),
- Specific Learning Disability (SLD),
- Asian, non-Hispanic (non-SLD, non-EMN, non-AUT),
- Hispanic (non-SLD, non-EMN, non-AUT),
- Black, non-Hispanic (non-SLD, non-EMN, non-AUT), and
- Other race, non-Hispanic (non-SLD, non-EMN, non-AUT)

combined with the total number of students in each of those seven categories at a given school. In other words, the size measure for a given school ( $i$ ) in school stratum  $h$  may be written as follows:

$$S_{h,i} = \sum_{j=1}^7 r_{h,j} N_{h,i,j}$$

where  $r_{h,j}$  is the sampling rate for the  $j^{\text{th}}$  student category in the  $h^{\text{th}}$  school stratum and  $N_{h,i,j}$  is the number of students in the  $j^{\text{th}}$  category within school  $i$  in the  $h^{\text{th}}$  school stratum. The sampling rate,  $r_{h,j}$ , equals the number of students to sample from the  $j^{\text{th}}$  category in the  $h^{\text{th}}$  school stratum divided by the number of students in the  $j^{\text{th}}$  category across all schools in the  $h^{\text{th}}$  school stratum. The sampling rates for the seven student categories listed above varied across the school strata; for example, a rate of 0 was used for students with Autism at Catholic schools while an overall rate of .033 was used for students with Autism at public schools. The designed student sampling rates by school strata are provided in table 3. Because private schools do not report focal disability counts to *EDFacts*, the school sampling process assumed no students in the focal disability categories were enrolled in private schools. The sampling plan did not rely on sampling focal disability students from private schools in order to try to achieve the desired number of participating students in each of the three focal disability categories.

**Table 3. Aggregate Student Sampling Rates Used for School Selection**

School Type	Census Region	Prevalence	Overall	AUT	EMN	SLD	Asian	Hispanic	Black	Other
Public	Northeast	High	0.009	0.038	0.065	0.004	0.008	0.004	0.003	0.005
	Northeast	Low	0.006	0.031	0.031	0.005	0.009	0.004	0.002	0.005
	Midwest	High	0.010	0.040	0.081	0.004	0.010	0.005	0.005	0.005
	Midwest	Low	0.006	0.024	0.024	0.005	0.009	0.004	0.004	0.005
	South	High	0.009	0.045	0.109	0.005	0.007	0.004	0.003	0.006
	South	Low	0.006	0.034	0.034	0.005	0.009	0.005	0.003	0.005
	West	High	0.010	0.052	0.122	0.004	0.009	0.004	0.004	0.006
	West	Low	0.005	0.025	0.025	0.005	0.008	0.004	0.003	0.005
Catholic	Northeast	Low	0.017	NA	NA	NA	0.024	0.024	0.024	0.014
	Midwest	Low	0.016	NA	NA	NA	0.022	0.022	0.022	0.015
	South	Low	0.016	NA	NA	NA	0.026	0.027	0.027	0.011
	West	Low	0.017	NA	NA	NA	0.025	0.025	0.024	0.011
Other private	Northeast	Low	0.011	NA	NA	NA	0.011	0.010	0.011	0.011
	Midwest	Low	0.009	NA	NA	NA	0.010	0.009	0.009	0.009
	South	Low	0.012	NA	NA	NA	0.012	0.012	0.012	0.012
	West	Low	0.011	NA	NA	NA	0.011	0.011	0.011	0.011

NOTE: NA: Not Applicable. No explicit participation goals are established for Catholic and Other private schools with the three focal disability groups.

The distribution of the final school sample of 1,529 schools and the counts of the number of participating schools are provided in table 4.

**Table 4. MS1 Final School Sample and Participating Schools**

School Type	Census Region	Prevalence	Participation Goals	Final School Sample	Participating Schools	Ineligible Schools
<b>Total</b>	-	-	<b>900</b>	<b>1,529</b>	<b>568</b>	<b>83</b>
Public	Northeast	High	17	31	7	4
Public	Northeast	Low	105	180	59	7
Public	Midwest	High	35	64	14	4
Public	Midwest	Low	127	215	86	18
Public	South	High	50	84	26	4
Public	South	Low	228	380	168	18
Public	West	High	26	46	19	3
Public	West	Low	152	249	96	9
Catholic	Northeast	Low	19	32	11	2
Catholic	Midwest	Low	28	48	22	1
Catholic	South	Low	19	31	13	1
Catholic	West	Low	14	23	11	2
Other Private	Northeast	Low	16	32	3	5
Other Private	Midwest	Low	15	25	7	1
Other Private	South	Low	33	60	17	1
Other Private	West	Low	16	29	9	3

The sampling plan was designed to produce constant weights within each of the seven student domains (autism, specific learning disability, emotional disturbance, Asian non-Hispanic (non-SLD, non-EMN, non-AUT), Hispanic (non-SLD, non-EMN, non-AUT), Black non-Hispanic (non-SLD, non-EMN, non-AUT), and other non-Hispanic (non-SLD, non-EMN, non-AUT)) within each school stratum. When weights are constant within a given student domain and school stratum, there is no increase in the design effect due to unequal weights for estimates produced for the given student domain and school stratum.

Within participating schools, students were stratified into the seven student categories defined above and a simple random sample of students were selected from each student sampling stratum. An average of 30.6 students were sampled from each of the 568 participating schools. However, the number of students sampled per student stratum varied by school because the within-school student allocation to strata depended upon the number of students in each of the seven student sampling strata. The process of determining the student sample allocation followed the procedure outlined in section 2 of Folsom et al (1987).<sup>7</sup>

As schools agreed to participate in the study, students enrolled in grade 6 were selected from student rosters that

<sup>7</sup> Folsom, R.E., Potter, F.J., and Williams, S.R. (1987). Notes on a Composite Size Measure for Self-Weighting Samples in Multiple Domains. Proceedings of the Section on Survey Research Methods of the American Statistical Association, 792-796.

schools were asked to provide. The student sample sizes were determined by the requirement that at least 782 students in each of the seven student domains<sup>8</sup> participate in the second follow-up of MGLS:2017. That requirement was determined by evaluating the minimum required sample size that would be able to measure a relative change of 20 percent in proportions between any pair of the MGLS:2017 study rounds (MS1 in 2018, first follow-up, and second follow-up). Several assumptions were used to conduct this evaluation, as noted below.

- Two-tailed tests with significance of  $\alpha = 0.05$  were used to test differences between means and proportions with required power of 80 percent.
- A proportion of  $p = .30$  was used to calculate sample sizes for tests of proportion.
- Design effect is 2.0.
- Correlation between waves is 0.6.

McNemar’s test using Connor’s approximation was used to determine the minimum sample size needed to meet the precision requirement under the previously stated assumptions. The Proc Power procedure available in SAS software<sup>9</sup> was used to determine the minimum sample size.

The minimum number of students to sample from each of the seven student categories in the 2018 MS1, along with the assumptions used to derive those numbers, are provided in table 5.

Estimates of the minimum number of students to sample in the 2018 MS1 were derived by adjusting the 782 to account for a variety of factors including estimates of student response in grades 6, 7, and 8 as well as other factors, including the extent to which MS1 participating schools agree to participate in the first and second follow-up studies and the extent to which students are expected to change schools between grades 6 and 7 and between grades 7 and 8.

Because of different assumptions regarding student response rates and mover rates, the number of grade 6 students to sample varies across the student categories. In order to achieve the required minimum of 5,474 grade 8 respondents, with 782 respondents in each of the seven student categories, a total of 13,987 students must be sampled in grade 6. Following the assumptions specified in table 5, we estimated that 10,334, or approximately 74 percent, of a sample of 13,987 students would respond in grade 6. This minimal total sample of 13,987 students, however, employs a substantial oversampling of students in two of the three focal disability categories and a substantial undersampling of Hispanic (non-SLD, non-EMN, non-AUT), Black, non-Hispanic (non-SLD, non-EMN, non-AUT), and Other race, non-Hispanic (non-SLD, non-EMN, non-AUT) students. In order to reduce the impact of disproportionate sampling on national estimates and estimates that compare or combine estimates across student categories, the sample sizes for the Hispanic (non-SLD, non-EMN, non-AUT), Black, non-Hispanic (non-SLD, non-EMN, non-AUT), and Other race, non-Hispanic (non-SLD, non-EMN, non-AUT) student categories were increased.

Therefore, for MS1, the plan was to sample 29 students, on average, within each of 900 participating schools for a total of 26,100 sample students and, assuming the grade 6 eligibility and response rates shown in table 5, to produce approximately 20,322 participating grade 6 students. The distribution of the grade 6 student sample and estimates of the number of participating students in each of grades 6, 7, and 8 are provided in table 6. The achieved student sample sizes and actual student participation counts for grade 6 are provided in table 7.

**Table 5. Minimum Sample Sizes and Associated Sample Design Assumptions for Student Sampling Categories**

Assumption	Each Non-focal disability student category	SLD	AUT	EMN
Grade 6 inflated student sample size	1,509	2,455	2,748	2,748
Grade 6 student eligibility rate	97%	97%	97%	97%
Grade 6 student response rate	85%	75%	67%	67%
Grade 7 inflated student sample size	1,244	1,786	1,786	1,786
Grade 7 school retention rate	96%	96%	96%	96%
Grade 6 to 7 move rate	30%	30%	30%	30%
Grade 7 mover follow rate	80%	100%	100%	100%
Grade 7 non-mover response rate	92%	75%	75%	75%
Grade 7 mover response rate	60%	45%	45%	45%
Grade 8 inflated student sample size	941	1,132	1,132	1,132
Grade 8 school retention rate	96%	96%	96%	96%

<sup>8</sup> The seven student domains are as follows: Autism (AUT); Emotional Disturbance (EMN); Specific Learning Disability (SLD); Asian, non-Hispanic (non-SLD, non-EMN, non-AUT); Hispanic (non-SLD, non-EMN, non-AUT); Black, non-Hispanic (non-SLD, non-EMN, non-AUT); and Other race, non-Hispanic (non-SLD, non-EMN, non-AUT)

<sup>9</sup> SAS Institute Inc. 2008. SAS/STAT® 9.2 User’s Guide. Cary, NC: SAS Institute Inc.

Assumption	Each Non-focal disability student category	SLD	AUT	EMN
Grade 7 to 8 move rate	15%	15%	15%	15%
Grade 8 mover follow rate	80%	100%	100%	100%
Grade 8 non-mover response rate	92%	75%	75%	75%
Grade 8 mover response rate	70%	55%	55%	55%
Grade 8 minimum number of respondents	782	782	782	782

**Table 6. Final Student Sample Sizes and Expected Minimum Student Participation by Grade**

Assumption	non-SLD, non-EMN, non-AUT				SLD	AUT	EMN	Total
	Hispanic	Asian, non-Hispanic	Black, non-Hispanic	Other race, non-Hispanic				
Grade 6 inflated student sample size	3,786	1,509	1,868	10,986	2,455	2,748	2,748	26,100
Grade 6 student eligibility rate	97%	97%	97%	97%	97%	97%	97%	—
Grade 6 student response rate	85%	85%	85%	85%	75%	67%	67%	—
Grade 6 expected participants	3,122	1,244	1,540	9,058	1,786	1,786	1,786	20,322
Grade 7 school retention rate	96%	96%	96%	96%	96%	96%	96%	—
Grade 6 to 7 move rate	30%	30%	30%	30%	30%	30%	30%	—
Grade 7 mover follow rate	80%	80%	80%	80%	100%	100%	100%	—
Grade 7 non-mover response rate	92%	92%	92%	92%	75%	75%	75%	—
Grade 7 mover response rate	60%	60%	60%	60%	45%	45%	45%	—
Grade 7 expected participants	2,361	941	1,165	6,852	1,132	1,132	1,132	14,715
Grade 8 school retention rate	96%	96%	96%	96%	96%	96%	96%	—
Grade 7 to 8 move rate	15%	15%	15%	15%	15%	15%	15%	—
Grade 8 mover follow rate	80%	80%	80%	80%	100%	100%	100%	—
Grade 8 non-mover response rate	92%	92%	92%	92%	75%	75%	75%	—
Grade 8 mover response rate	70%	70%	70%	70%	55%	55%	55%	—
Grade 8 expected participants	1,963	782	969	5,697	782	782	782	11,757

Note: SLD=Specific Learning Disability. AUT=Autism. EMN=Emotional Disturbance. The non-focal disability student categories are Asian, non-Hispanic (non-SLD, non-EMN, non-AUT); Hispanic (non-SLD, non-EMN, non-AUT); Black, non-Hispanic (non-SLD, non-EMN, non-AUT); and Other race, non-Hispanic (non-SLD, non-EMN, non-AUT.)

**Table 7. Actual Student Sample Sizes and Student Participation<sup>10</sup> for Grade 6**

Assumption	non-SLD, non-EMN, non-AUT				SLD	AUT	EMN	Total
	Hispanic <sup>11</sup>	Asian, non-Hispanic	Black, non-Hispanic	Other race, non-Hispanic				
Grade 6 student sample size	3,224	1,048	1,953	8,378	1,447	808	513	17,371
Grade 6 participants	3,718	811	1,441	6,713	1,231	666	416	14,996

Note: SLD=Specific Learning Disability. AUT=Autism. EMN=Emotional Disturbance. The non-focal disability student categories are Asian, non-Hispanic (non-SLD, non-EMN, non-AUT); Hispanic (non-SLD, non-EMN, non-AUT); Black, non-Hispanic (non-SLD, non-EMN, non-AUT); and Other race, non-Hispanic (non-SLD, non-EMN, non-AUT.)

## MS2 Samples

The MS2 student sample will consist of the estimated 16,812 students sampled in MS1 who have not withdrawn from the study plus an estimated additional 6,163 students sampled at sample augmentation schools. Some of the MS1 participants may be reclassified as study ineligible as part of MS2 or as part of status updates conducted between MS1 and MS2. Students who became deceased between MS1 and MS2 will be classified as study ineligible and students who were previously thought to be enrolled in sixth grade as of fall 2017 may turn out to have not been enrolled in sixth grade as of fall 2017 and will also be classified as study ineligible. We estimate that 97 percent (16,307) of the MS1 16,812 student sample members will be eligible for MS2. The MS2 school sample will consist of the MS1 participating schools, 697 MS1 non-participating schools that offer instruction in grade 8, and an estimated 850 non-base-year transfer schools at which one or more sample students will be enrolled as of MS2. We estimate that approximately 28 of the 697 MS1 non-participating schools that offer instruction in grade 8 will agree to participate and that approximately 767 students will be sampled from those schools leading to participation of 488 students. In addition,

<sup>10</sup> A student was considered a participant if the student completed the student assessment or student survey or if a parent or teacher associated with the student completed their respective survey.

<sup>11</sup> Students participants classified as Hispanic for this table include students whose Hispanic status is currently indeterminate due to conflicting information collected from students, parents, and schools. Once the rules for processing the students with indeterminate status have been finalized and put into place, the total number of Hispanic student participants may be reduced. Also note that the counts reported for student sample sizes used Hispanic status as provided in school enrollment lists for classification. Some schools did not provide an indicator of Hispanic status so some students who are Hispanic would have been captured in the counts of Other race, non-Hispanic.

we plan to recruit an additional 206 schools to augment the sample in order to increase the number of participating students in key domains. The augmentation sample is intended to increase the number of participating students who attended schools in towns in the 2017-2018 school year, students who attended private schools in the 2017-2018 school year, students who attended schools in the Northeast in the 2017-2018 school year, and non-Hispanic black students. Approximately 965 schools will be sampled from the reserve set of schools constructed for MS1 and, of these, an estimated 647 schools is expected to offer instruction in grade 8, to not reside in school districts that declined to participate in MS1, and to therefore be eligible to be pursued for recruitment. The reserve school sample size, estimated numbers of schools to be pursued for recruitment, and estimated number of participating schools from this augmentation sample are provided in Table 8.

**Table 8. MS2 School Augmentation Sample**

School Type	Census Region	Prevalence Status	Schools in MS1 Reserve	Augmentation Sample	Estimated Number of Augmentation Schools with 8th Grade in Non-refusing School Districts	Estimated Number of Participating Schools Among Augmentation Sample
<b>Total</b>	-	-	<b>2,431</b>	<b>965</b>	<b>647</b>	<b>206</b>
Public	Northeast	High	42	0	0	0
Public	Northeast	Low	269	146	103	27
Public	Midwest	High	88	0	0	0
Public	Midwest	Low	348	288	182	58
Public	South	High	133	0	0	0
Public	South	Low	628	388	262	92
Public	West	High	63	0	0	0
Public	West	Low	405	75	40	12
Catholic	Northeast	Low	57	0	0	0
Catholic	Midwest	Low	79	40	34	12
Catholic	South	Low	54	0	0	0
Catholic	West	Low	44	0	0	0
Other Private	Northeast	Low	43	0	0	0
Other Private	Midwest	Low	46	0	0	0
Other Private	South	Low	87	28	26	5
Other Private	West	Low	45	0	0	0

Assuming the desired number of participating schools from the augmentation sample are achieved, an estimated additional 3,930 students are expected to participate in MS2 from the augmented sample of schools. Of these 3,930 additional participating students, 496 are estimated to attend schools in towns, 243 in private schools, 490 in the Northeast, and 520 to be non-Hispanic black students.

### OFT3 Samples

A stratified random sample of 135 schools was selected for the OFT1, and 45 schools participated. The OFT1 sample of schools was selected using a two-stage selection process that followed the process outlined for the MS1 sample, with some differences in the school sampling strata. The school sampling frame for the OFT1 was constructed from the MS1 school sampling frame by including only schools in one of ten metropolitan statistical areas (MSAs). Schools within each MSA were stratified into high and low prevalence strata using the same methodology that was employed for the MS1 school stratification. The school sample size, number of schools sampled that were determined to be ineligible, and the number of schools that participated are provided in Table 9. The participation rate among eligible schools was 34.9 percent (45/129.)

**Table 9. OFT1 School Sample Disposition**

School Region	Prevalence	School Frame Count	Sample Size	Ineligible Schools	Participating Schools
<b>Total</b>	-	<b>3,301</b>	<b>135</b>	<b>6</b>	<b>45</b>
A	High Prevalence	76	10	0	4
A	Low Prevalence	395	7	0	3
B	High Prevalence	22	12	0	2
B	Low Prevalence	293	7	2	1
C	High Prevalence	1	1	0	0
C	Low Prevalence	87	11	0	5
D	High Prevalence	5	5	0	0
D	Low Prevalence	170	7	1	3
E	High Prevalence	5	5	0	0

School Region	Prevalence	School Frame Count	Sample Size	Ineligible Schools	Participating Schools
E	Low Prevalence	305	8	0	2
F	High Prevalence	40	7	0	4
F	Low Prevalence	566	6	0	3
G	High Prevalence	14	9	0	2
G	Low Prevalence	572	6	0	3
H	High Prevalence	12	11	0	1
H	Low Prevalence	497	6	3	0
I	High Prevalence	4	4	0	1
I	Low Prevalence	148	6	0	5
J	High Prevalence	2	2	0	2
J	Low Prevalence	87	5	0	4

Stratified simple random samples of students were selected within each of the 45 OFT1 participating schools. A total of 1,739 students was sampled and 1,294 participated for a 76.4 percent participation rate. The sample size, numbers of eligible and ineligible students, and number of participating students are provided in Table 10.

**Table 10. OFT1 Student Sample Disposition**

Student Group	Student Sample Size	Ineligible Students	Eligible Students	Participating Students
<b>Total</b>	<b>1,739</b>	<b>46</b>	<b>1,693</b>	<b>1,294</b>
Autism	98	2	96	47
Emotional Disturbance	63	2	61	33
Specific Learning Disability	200	6	194	147
No Key Focal Disability	1,378	36	1,342	1,067

OFT1 students were tracked into OFT2. The OFT2 student sample consisted of 1,255 (97 percent) of the 1,294 students who participated in OFT1. The OFT2 school sample consisted of the 45 OFT1 participating schools combined with 30 non-base-year transfer schools at which one or more students from the OFT2 sample were enrolled as of OFT2.

OFT2 also included about 400 participating students in grade 8 to calibrate the mathematics and reading assessment items for MS2 without needing another costly field test. Participating OFT2 schools were asked to provide high-level grade 8 math classes for this calibration. This was a convenience sample of classrooms to ensure that a yield of about 400 highest ability grade 8 students was achieved.

## **B.2 Procedures for the Collection of Information**

MGLS:2017 will rely on a set of complementary instruments to collect data across several types of respondents to provide information on the outcomes, experiences, and perspectives of students. These instruments will be used when the students are in grades 6 and 8 to allow for the analysis of change and growth across time; their families and home lives; their teachers, classrooms, and instruction; and the school settings, programs, and services available to them. At each round of data collection, students' mathematics and reading skills, socioemotional development, and executive function will be assessed. Students will also complete a survey that asks about their engagement in school, out-of-school experiences, peer group relationships, and identity development. Parents will be asked through an online survey or over the telephone about their background, family resources, and involvement with their child's education and school. Students' mathematics teachers will complete a two-part survey. In part 1, they will be asked about their background and classroom instruction. In part 2, they will be asked to report on the academic behavior, mathematics performance, and classroom conduct of each study child in their classroom(s). For students receiving special education services, their special education teacher or provider will also complete a survey similar in structure to the two-part mathematics teacher instrument, consisting of a teacher-level questionnaire and student-level questionnaire, but with questions specific to the special education experiences of and services received by the study child. School administrators will be asked to report on school programs and services, as well as on school climate. Finally, a facilities observation checklist, consisting of questions about the school buildings, classrooms and campus security, will be completed by field data collection staff.

The OFT1 school recruitment and data collection approaches, which informed those of MS1, were fully described in the previous clearance submission (OMB# 1850-0911 v. 10-15). Below, the methodological descriptions focus on OFT3 student tracking and MS2 student tracking and school recruitment.

### **OFT3 Tracking**

The OFT3 will consist of student tracking, mirroring the OFT2 tracking procedures, as described below. The period of

OFT student tracking was originally envisioned to take place for OFT3 from August 2018 through May 2019. OFT tracking is important for understanding patterns in MGLS:2017 sample students' transfers from one school to another and our ability to locate sample students for the next follow-up data collection (from grade 7 to grade 8 in OFT3). Given that MGLS:2017 Main Study (MS) will not collect data in grade 7, tracking information will be central for designing the final materials and procedures for MS2. As with all OFT recruiting and tracking activities, the OFT dates need to mirror and precede by one year those planned for MS. Due to the current OMB clearance schedule, OFT3 tracking will take place from September 2018 through May 2019.

For OFT3, we anticipate students will fall into one of the three broad categories of enrollment –

- OFT3 returning schools: We anticipate that most students will continue to be enrolled at their grade 7 school the subsequent year, when most of the OFT sample will have advanced into grade 8. Base Year returning schools may include students who are held back and are still in grade 6 or grade 7 during the third year of the study.
- OFT3 transfer schools: We anticipate that some students will have transferred to schools that were not Base Year or OFT2 schools or the designated destination school.
- Other: In addition, we anticipate some students may no longer be enrolled in school (e.g., homeschools, virtual schools, other circumstances).

Tracking will occur for those students in the sample for whom data were collected from the student, parent, math teacher, or special education teacher during the grade six OFT1 collection. The planned three-tiered approach to tracking the MGLS:2017 OFT sample will include an enrollment status update at the school level, panel maintenance activities with parents, and database tracing.

**School Enrollment Status Update.** The purpose of the school enrollment status update is to check the enrollment status of the sampled students in the fall of the 2018-19 school year. We anticipate that many of the students will continue to be enrolled in the school they attended during OFT1 or OFT2, others will have transferred to a new school, or moved into another circumstance such as started home schooling. Collecting this information is necessary to maintain current records.

The schools that participated in the 2017 OFT1 or 2018 OFT2 will be asked to review the list of eligible sampled students from OFT2. For those who have left the school, we will ask schools to provide the student's last date of attendance, current school status (transfer, home schooling, etc.), last known address and phone number, and, for transfer students, the name, city, and state of the student's new school if they are known. We anticipate that it will take 20 minutes, on average, to provide this information through a secure website set up for this purpose.

To initiate this contact, the school principal from each school will receive a lead letter that explains the purpose of the planned follow-up field test and that includes a user name, password, and secure website address. Appendix OFT3-A contains the letter to be sent to sampled schools. The letter will prompt the principal or designee to log into the study website. Upon logging in, the principal/designee must confirm he or she is the intended recipient of the letter by answering an identification verification question, and then reset the password for the account. There is no access to any information until the password is reset using a strong password. A test of the password's strength is built into the password change application. The users then proceed to a screen where they verify the current enrollment of sampled students and provide any updated information they may have on MGLS:2017 students who are no longer enrolled. Appendix OFT3-B includes the instructions to users and Appendix OFT3-C provides a sample form to be used for the screenshots of the enrollment list update application.

If a user has to stop and continue updating later, he or she must use the new password he or she created. If the user forgets the new password, he or she must contact the MGLS:2017 help desk to reset the password.

A follow-up email will be sent two weeks after the lead letter to all nonrespondents. School Enrollment List Update nonrespondents will be categorized into two groups:

**Group One:** Have not changed their password or initiated the process at all – they will receive an email with the same study ID, password, and URL prompting them to change the password and initiate the enrollment update process, just as in the letter.

**Group Two:** Have started the update but have not "submitted" it – they will get an email prompting them to continue and reminding them that if they have forgotten their password, they can contact the help desk to have it reset.

After the two-week period, the recruitment team will begin to contact the school via telephone to follow up on the

enrollment status update. As the enrollment status updates are received and processed, students who are no longer attending the OFT1 or OFT2 school will be identified. Transfer schools will be contacted to confirm enrollment of transfer students. Appendices OFT3-I through OFT3-K provide the communication materials that will be sent to the school districts and to the schools that are newly identified for the study to confirm enrollment of the student(s) reported to have transferred to the school.

**Parent/Student Address Update.** In addition to the school-level update, we plan to directly contact the parents of eligible sampled students to update our address database. A mailing (OFT3-E) will be sent to the parent or guardian of each sample student asking that the parent or guardian log onto our website and update their contacting information. If we have an email address for the parent, the materials will be sent via email as well (OFT3-F). For data security reasons, no personally identifiable information will be preloaded onto the website for this address update. In addition to updating contact information, parents will be asked whether their child will be at the same school that he/she attended in the spring of 2018, or if his/her school enrollment status has changed. The address update will take approximately 5 minutes to complete. See appendix OFT3-G for an example of the information that will be provided on the website for the parent to update. To maximize response, a hardcopy version (OFT3-H) of the same form will be sent to nonrespondents 3 weeks after the mailing is sent with the address update website. An email reminder will be sent at this time as well.

**Tracing.** Batch tracing will be conducted about 30 days prior to the start of the OFT3 parent/student address update. Batch databases are used to confirm or update the contact information that we have for parents to maximize resources for the data collection activities. A locator database will be maintained for the study and all newly identified information will be loaded into the locator database regularly to be used for current and future data collection efforts.

### **MS2 Tracking and Recruitment Approach**

In preparation for MS2, we will track the student's enrollment status and update the parents' contact/locating data. MS2 tracking will take place from September 2018 through May 2020 and will be carried out in multiple rounds. MS2 data collection will occur from January through July of 2020.

The OFT3 tracking procedures described above will be used to track the main study sample. In preparation for MS2, we will track students' enrollment status and update their parents' contact/locating data through panel maintenance activities and database tracing. These procedures may be modified based on the OFT3 experience, in which case such modification will be submitted to OMB for approval as a change request.

As with OFT3 tracking, MS2 tracking will occur for all MS1 participating students. Student participation in the base year is defined as receiving data from the student, the student's parent, the student's math teacher, or the student's special education teacher/service-provider.

### **MS2 Augmentation School Recruitment Approach**

Gaining schools' cooperation in voluntary research is increasingly challenging. For example, in 1998–99 the Early Childhood Longitudinal Study had a weighted school-level response rate of 74 percent,<sup>12</sup> whereas 12 years later, the complementary ECLS-K:2011 study had a weighted school-level response rate of 63 percent.<sup>13</sup> Additionally, there is evidence that response rates may be lower for schools that serve older students, as in the High School Longitudinal Study of 2009, which had a weighted school-level response rate of 56 percent.<sup>14</sup> As previously stated, the MGLS:2017 MS1 achieved participation from 570 schools instead of the desired 900. In addition to returning to the 570 schools that participated in MS1, we will be augmenting the sample and recruiting an additional 206 schools to participate in the winter/spring 2020. Effective strategies for gaining the cooperation of schools are of paramount importance. Recruitment activities for the augmentation sample will begin about one year prior to the start of MS2 data collection, in January 2019.

**Recruitment of MS1 Districts and Diocese.** Some schools in the augmentation sample will be in school districts or dioceses with schools that are already participating in the study. For these districts and dioceses, we will notify them

<sup>12</sup> Tourangeau, K., Nord, C., Lê, T., Sorongon, A.G., Hagedorn, M.C., Daly, P., and Najarian, M. (2001). *Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K), User's Manual for the ECLS-K Base Year Public-Use Data Files and Electronic Codebook* (NCES 2001-029). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

<sup>13</sup> Tourangeau, K., Nord, C., Lê, T., Sorongon, A.G., Hagedorn, M.C., Daly, P., and Najarian, M. (2012). *Early Childhood Longitudinal Study, Kindergarten Class of 2010–11 (ECLS-K:2011), User's Manual for the ECLS-K:2011 Kindergarten Data File and Electronic Codebook* (NCES 2013-061). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

<sup>14</sup> Ingels, S.J., Pratt, D.J., Herget, D.R., Burns, L.J., Dever, J.A., Ottem, R., Rogers, J.E., Jin, Y., and Leinwand, S. (2011). *High School Longitudinal Study of 2009 (HSL:09). Base-Year Data File Documentation* (NCES 2011-328). U.S. Department of Education. Washington, DC: National Center for Education Statistics.

that we have added schools to the MS2 sample and that we will be contacting them. If a district required a research application, an addendum to that application will be sent to the district for approval to contact the schools.

**Recruitment of New Districts or Diocese.** For school districts new to the study, school districts of augmentation sample public schools and dioceses of sample Catholic schools (if district or diocese affiliation exists) will receive a mailing about the study. The district introductory information packet includes a cover letter (appendix MS2B-H), a colorful recruitment-oriented brochure (appendix MS2-A1), and a sheet of Frequently Asked Questions (FAQs) about the study (appendix MS2B-K). Three days after mail delivery of the packet, a recruiter calls to secure the district's cooperation and answer any questions the superintendent or other district staff may have. The staff person working with us from the school district is asked to sign an affidavit of nondisclosure (NDA) prior to receiving the list of schools sampled in the district. Once the signed nondisclosure affidavit is received, we discuss the sampled schools, confirm key information about the schools (e.g., grades served, size of enrollment), and discuss obtaining the students' IEP information that is necessary for drawing the MS1 student sample. Information collected during this call is used to confirm which schools in the district are eligible for participation in the study, and to obtain contact and other information helpful in school recruitment.

The study staff are prepared to respond to requirements such as research applications or meetings to provide more information about the study. If a district chooses not to participate, the recruiter documents all concerns listed by the district so that a strategy can be formulated for refusal conversion attempts.

In addition to obtaining permission to contact the selected schools, districts are also asked about the best way to gather student rosters.

**Recruitment of Public and Catholic Schools.** Upon receipt of district or diocesan approval to contact the sample public or Catholic schools, respectively, an introductory information packet is sent via overnight express courier that includes a cover letter (appendix MS2B-I) and the same colorful recruitment-oriented brochure (appendix MS1-H) and sheet of Frequently Asked Questions (FAQs) about the study (appendix MS2B-K) that were sent to school districts and dioceses with links for accessing the MGLS:2017 recruitment website. Three business days after the information packet delivery (confirmed via package tracking), a school recruiter follows up with a phone call to secure the school's cooperation and answer any questions the school may have. During this call, the recruiter establishes who from the school's staff will serve as the school coordinator for the study. If schools do not respond by phone or email to recruitment efforts within one month, in-person recruitment will be considered for the school.

In the fall of 2019, the MGLS:2017 study team will work with the school coordinator to schedule MS2 activities at the school, including gathering student rosters, distributing consent materials to parents of sample students, and arranging the onsite assessments. In early communications, the recruiter will also gather information about what type of parental consent procedures need to be followed at the school; any requirements for collecting data on the IEP status of students and student's teacher and math course information; hours of operation, including early dismissal days, school closures/vacations, and dates for standardized testing; and any other considerations that may impact the scheduling of student assessments (e.g., planned construction periods, school reconfiguration, or planned changes in leadership). The study recruitment team will meet regularly to discuss recruitment issues and develop strategies for refusal conversion on a school-by-school basis.

**Private and Charter School Recruitment.** If a private or charter school selected for MS2 operates under a higher-level governing body such as a diocese, a consortium of private schools, or a charter school district, we will use the district-level recruitment approach with the appropriate higher-level governing body. If a private or charter school selected for MS2 does not have a higher-level governing body, the school recruitment approach outlined above will be used.

**Recruitment of Schools for Out-of-school Student Data Collection.** As a final effort to secure the participation of schools and their students, we will offer the possibility of collecting student data outside of school. This option will be offered to schools that are unable to otherwise schedule study participation into the school calendar. Schools allowing an out-of-school student data collection will be asked to provide a student roster to select students into the sample along with contact information to invite the parent and student to participate via Web and teacher information in order to invite teachers to participate in the teacher surveys. Student data collection will be conducted using the out-of-school data collection procedures described below.

**Collection of Student Rosters.** Beginning in the fall of 2019, data collection staff will gather student rosters for schools that have agreed to participate in the study. These rosters will be collected from the district or directly from the school with the assistance of the school coordinator from the school. A complete roster of all students eligible for sampling will be requested, and information will be requested for each student on key student characteristics, such as:

name; school or district ID number; month and year of birth; grade level; gender; and race/ethnicity<sup>15</sup>. Each of these characteristics is important for sampling purposes, but we will work with schools that are unable to provide all of the information to obtain the key information available. Based on this information the student sample will be drawn. As part of the roster collection, the study will also request from the school coordinator or designated district personnel the following information for each student eligible for sampling: student's parent and/or guardian contact information (e.g., mailing address; landline phone number; cell phone number; e-mail address); student's math teacher (including course name and period or section number); and student's special education teacher, when applicable. Schools and districts usually find it easiest, and therefore most efficient, to supply all of the desired information one time for all of their students. However, should it be problematic for any school or district to provide the parent and teacher information on the complete roster, the data collection team will gather that information as a second step for the sampled students only. If the school and/or district is unwilling to provide parent contact information for the sampled students, the team will work with the school and/or district to determine the best way to contact parents (e.g., the school coordinator or designated district personnel would facilitate contacting parents and/or mail the required materials to parents using the contact information they have on file).

Schools and districts will be provided with a template and secure transfer options to deliver the rosters (see appendix MS2B-J for student rostering materials). Unlike the enrollment status update that is completed directly on the website, most schools will upload their roster to the study website in a process similar to attaching a file to an email. Once received, the data quality of the student rosters will be then evaluated by:

- reviewing and assessing the quality and robustness of student and parent information available at each school, including contact information for parents;
- reviewing and assessing the quality of the data on student-teacher linkages;
- reviewing and assessing the quality of the data on IEP status;
- addressing any incompleteness or irregularities in the roster file;
- requesting additional information as needed from the school coordinator or designated district personnel; and
- (re)verifying that the sampled students are currently in attendance in the school.

**Parent Recruitment.** Information about schools' procedures for obtaining consent for students to participate in the study will have been gathered during school recruitment. Schools generally require one of two types of consent: implicit or explicit (appendix MS2B-Q1 and MS2B-Q2). Both types of consent require that parents be notified that their children have been selected for the study. With implicit consent, the school does not require verbal or written consent for a student to participate in the study – parents are asked only to notify the appropriate person if they do not want their child to participate. With explicit consent, children may participate only if their parents provide written or oral consent for their children to do so. In MS2, as in MS1, proactive parent recruitment will be focused on maximizing the number of parents (1) returning signed explicit consent forms and (2) completing the parent survey. Because implicit consent does not require a verbal or written response from parents, these parents will not be contacted about consent forms.

After the student sample is drawn within a school, the initial communication with parents consisting of introductory and consent materials will be distributed to parents in a way each school believes to be most appropriate and effective (e.g., sending the materials home with students; the school or district sending the materials directly to parents; and/or trained MGLS:2017 recruitment staff contacting parents directly by mail, email, and/or phone). The initial materials will introduce the study, explain the study's purpose and the importance of student and parent participation, describe what is involved in participation, and specify the consent procedure that is being used by their school. The materials will include a consent seeking letter to all parents plus a consent form of the type specified by the school (appendix MS2B-Q1 and MS2B-Q2), a colorful recruitment-oriented brochure (appendix MS1-H), and a sheet of FAQs about the study (appendix MS2B-K) with links for accessing the MGLS:2017 recruitment website (website text in appendix MS1-J). Additionally, in schools using explicit consent, the parental consent form for student's participation, which will be included in the initial communication materials, will ask parents to provide their contact information.

### ***MS2 Recruitment of Base Year Nonresponding Schools***

Some school districts and schools that were unable to participate in the 2017-18 data collection had told us that they would be willing to participate if it wasn't during that particular year. We will contact school districts and schools that did not participate in the base year to recruit them for the follow-up study. The recruitment and collection of student rosters will occur as described for the augmentation schools, with the correspondence that will be used provided in

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<sup>15</sup> We are no longer asking for IEP information on the student roster because we are no longer maintaining those oversamples.

### **B.3 Methods to Secure Cooperation, Maximize Response Rates, and Deal with Nonresponse**

#### ***MS2 Recruitment***

Methods to secure cooperation, maximize response rates, and deal with response for MS1 recruitment have been described and approved in previous submissions (OMB# 1850-0911 v. 11-15). They are reiterated here because they inform these activities for OFT3 tracking, as well as MS2 recruitment and tracking. Recruitment is necessary for the augmentation sample, but also for the 570 schools that participated in MS1 to secure their cooperation in the follow-up and for the destination schools for students who may have moved to another school after sixth or seventh grade.

***Maximizing School Participation.*** District- and school- participation rates in school-based studies have been declining steadily over time. District and school personnel understand the value of the research but have many reasons for refusing participation in these voluntary studies, which require considerable burden on their part. Studies increasingly experience challenges in obtaining the cooperation of districts and schools. Loss of instructional time, competing demands (such as district and state testing requirements), lack of teacher and parent support, and increased demands on principals impede gaining permission to conduct research in schools. MGLS:2017 recruitment teams will be trained to communicate clearly to districts, dioceses, private school organizations, schools, teachers, parents, and students the benefits of participating in MS2 and what participation will require in terms of student and school personnel time. The following strategies will be utilized to maximize response rates among school districts and schools during the recruitment process:

- We have established partnerships with organizations such as the Association for Middle Level Education (AMLE), the National Forum to Accelerate Middle-Grades Reform (the Forum), the National Center for Education, Research and Technology (NCERT), and the School Superintendents Association (AASA). These organizations will actively promote the value of the study to their constituencies, as will a number of middle-grades education researchers who will participate in the recruitment effort. Members of the study team have attended conferences for these organizations and spoken to many schools about the value of the study. Once the augmentation sample is selected, it will be cross referenced with the list of school districts and schools we have spoken with at these conferences and, where there is a match, we will reach out directly to the person we spoke with at the conference to pave the way for the district's or school's participation. In addition, representatives from these organizations have committed to provide outreach to the middle grades community in general via information in newsletters and related communications. These communications will include information about the importance of the study, what study participation entails, and the benefits of the study to the middle grades community.
- School staff are extremely busy and reaching them to discuss the study is sometimes challenging. Schools that do not respond to our communications within one month will be considered for an in-person recruitment attempt. During this in-person visit, our staff will be able to collect roster or enrollment status information as needed.
- In-person recruitment will also be used for refusal conversion conversations as appropriate. Conference calls with senior staff at NCES and RTI may also be utilized for refusal conversion conversations.
- We have learned that many schools prefer to participate as early as possible in the calendar year, especially in January and February, to minimize overlap with school testing preparations. Data collection will begin as early as possible to enable schools to find a date that fits in their schedule. The in-school data collection will begin on January 7, 2020 for schools using implicit permission and January 14, 2020 for schools requiring written consent. In many schools/districts the January dates avoid mandatory testing, among other spring term activities (more than one-third of MS1 participating schools participated in January or February,).
- MS2 data collection will be conducted from January through July 2020. In-school student data collection will take place from January through June 2020, and staff and parent survey collection from January through July 2020. The inclusion of June 2020 as part of the available dates for in-school sessions will enable some schools to participate after their high-stakes testing is finished. Staff and parent surveys will continue through July 2020 to allow them sufficient time to respond, given that teacher and parent lists are submitted on a flow basis throughout the in-school data collection period.
- Each school will be offered \$400 in a check or a \$400 equivalent in goods/services. To provide a tangible connection between the school's participation and study findings and to respond to districts'/schools' desire

for data, we will also offer each school a report reflecting its aggregated MGLS:2017 assessment results as compared to national and sub-national results (where possible).

- We will offer to personnel of participating schools and districts training for analyzing and learning from MGLS:2017 data (to take place after data collections ends) as a professional development and continuing education opportunity incentive.
- We have included in this submission minor revisions to our communication materials to emphasize more explicitly the value and uniqueness of this middle-grades study and what may be learned as a result. We also make reference to what we give back to districts and schools (e.g., school-level reports).
- To encourage submission of parental consent forms in schools requiring explicit consent for student participation and to engender goodwill and enthusiasm with the school, we will offer the students an in-school pizza party (or other food provision per school's preference) to motivate returning the consent forms. Such an offer has the potential to reduce burden on the school staff while increasing student participation. We found that districts and schools with explicit consent requirements are sometimes hesitant to participate, anticipating low student participation, and that an incentive to students for returning the form can boost participation and alleviate those concerns.
- Students participating in school will be using earbuds to complete the audio portion of the student assessment. Students will be allowed to keep the earbuds after participation.
- Students participating outside of school will be offered \$20 for completing the session on their own time.
- Each student who participates will also receive a 2 hour community service certificate regardless of whether they participate in school or outside of school.
- We will offer an out-of-school student data collection to schools unwilling or unable to fit MGLS:2017 into the school schedule. To maximize student response, we will also contact students who miss the in-school session to participate outside of school.

Recruiters will be trained to address concerns that districts and schools may have about participation, while simultaneously communicating the value of the study and the school's key role in contributing high-quality data focusing on middle-grade students. Early engagement of districts and school administrators will be important. Along with what is described above, our plan for maximizing district, school administrator, and parent engagement includes the following:

**Experienced recruiters.** The recruiting team will include staff with established records of successfully recruiting school districts and schools. To maximize district approval, senior staff will make the initial district telephone contacts. Their familiarity with the study and its future impact, as well as their experience in working with districts to overcome challenges to participation, will be crucial to obtaining district approval. Recruiters contacting schools will be equally adept at working with school administrators and providing solutions to overcome the many obstacles associated with student assessments, including conflicts related to scheduling and assessment space, minimizing interruption to instructional time, and obtaining teacher and parent buy-in.

**Persuasive written materials.** Key to the plan for maximizing participation is developing informative materials and professional and persuasive requests for participation. The importance of the study will be reflected in the initial invitations from NCES (appendices MS2A-B2, MS2A-F to H, and MS2B-E to J) sent with a comprehensive set of FAQs (appendix MS2B-K), a colorful recruitment-oriented brochure describing the study (appendix MS2-A1), and a brief one-page flyer providing quick facts about the study which also explains that MGLS:2017 is different from other assessments (appendix MS-A2). Reviewing these study materials should provide districts and school administrators with a good understanding of the study's value, the importance of MGLS:2017, and the data collection activities required as part of the study. A full understanding of these factors will be important both to obtain cooperation and to ensure that schools and districts accept the data collection requests that follow.

**Persuasive electronically accessible materials.** In addition to written materials, information about the study will be available on the study website (text in appendix MS2-B1). The website will draw heavily on the written materials, will present clear and concise information about the study, and will convey the critical importance of taking part in the study.

**Outreach.** As mentioned briefly above, AMLE and the Forum will provide an outreach service, asking for support of the study, offering updates to their constituencies on the progress of the study, and making available information on recent articles and other material relevant to education in the middle grades. In addition, project staff will reach out to

contacts made at various conferences attended to promote the study.

**Buy-in and support at each level.** During district recruitment, the study team will seek not just permission to contact schools and obtain student rosters but also to obtain support from the district. This may take the form of approval of a research application and a letter from the district's superintendent encouraging schools to participate. Active support from a higher governing body or organization, such as a district or a diocese, encourages cooperation of schools. Similarly, when principals are interested in the research activity, they are more likely to encourage teacher participation and provide an effective school coordinator.

**Avoiding refusals.** MGLS:2017 recruiters will work to avoid direct refusals by focusing on strategies to solve problems or meet obstacles to participation faced by district or school administrators. They will endeavor to keep the door open while providing additional information and seeking other ways to persuade school districts and schools to participate.

### ***OFT3 and MS2 Tracking***

The success of tracking the student sample for MS2 and OFT3 will be driven by the success of the school recruitment strategies described above.

## **B.4 Test of Methods and Procedures**

Of the two MGLS:2017 field tests, IVFT was conducted in the winter/spring 2016 and OFT1 in the winter/spring 2017. Together, they were the basis for informing decisions about the methods and procedures for MS1. One of the main goals of the IVFT/OFT1 effort was to provide data needed to evaluate a battery of student assessments (in the areas of mathematics and reading achievement, and executive functions) and to evaluate survey instruments for use in MS1. To that end, a number of analyses were performed on the IVFT and OFT1 data in order to determine whether assessment and questionnaire items needed revision or removal.

The properties of the survey items were examined using frequencies, mean, median, mode, standard deviation, skew, kurtosis, and histograms. Differences in response patterns were examined overall and by grade level. If the survey items were intended to be part of a scale, reliability, dimensionality, and item-to-total correlations were examined. Additionally, bivariate correlations with preliminary mathematics assessment, reading assessment, and executive function information were examined. Finally, the timing required to answer items was reviewed to remove or revise any items that needed an inordinate amount of time to complete. Based on these findings, in combination with consideration of construct importance, decisions were made to revise some items and to remove others.

The purpose of the IVFT was also to provide data to establish the psychometric properties and item performance of the items in the mathematics item pool. These data were used to construct a two-stage mathematics assessment that was fielded in OFT1 and was refined for MS1. In addition, the IVFT and OFT1 provided data on the performance of the reading assessment and the executive function tasks. These data were used to refine the reading assessment and to select and refine executive function tasks that were fielded in MS1.

The IVFT also provided an opportunity to develop study policies and procedures that could be further tested in OFT1 for use in MS1. However, the two field tests are quite different. The IVFT included students in multiple grades, though not necessarily from a representative sample, and tested a large number of items to determine the item pool for the longitudinal study. A main goal of OFT1 was to better understand the recruitment strategies necessary for a large-scale nationally representative study to obtain the targeted sample yield of grade 6 general education students and students with disabilities, and the subsequent tracing and tracking strategies necessary to maintain the student sample from the base year (when sample students would be in grade 6) through the middle grade years, to when most of the students would be in grade 8. OFT1 provided an opportunity to further test the procedures that worked effectively in the IVFT and subsequently learn from OFT1 how to best implement them in MS1.

Two incentive experiments were conducted in OFT1 to inform decisions about the optimal baseline incentive offer for MS1. These experiments were a school-level incentive experiment and a parent-level incentive experiment.

***School-level Incentive Experiment.*** School participation has been increasingly difficult to secure. Given the many demands and outside pressures that schools already face, it is essential that schools see that MGLS:2017 staff understand the additional burden being placed on school staff when requesting their participation. The study asks for many kinds of information and cooperation from schools, including a student roster with basic demographic information (e.g., date of birth, sex, and race/ethnicity); information on students' IEP status, math and special education teachers, and parent contact information; permission for field staff to be in the school for up to a week; space for administering student sessions (assessments and surveys); permission for students to leave their normal classes for the duration of the sessions; and information about the students' teachers and parents. Sample students

with disabilities sometimes require accommodations and different session settings, such as individual administration and smaller group sessions, which add to the time the study spends in schools and sometimes require additional assistance from school staff to assure that these students are accommodated appropriately.

IVFT and OFT1 included a school-level incentive experiment (see Supporting Statement Part A of OMB# 1850-0911 v.9 and v.15 for details). Schools were randomly assigned to one of three incentive conditions: Condition 1 - \$200, Condition 2 - \$400, or Condition 3 - \$400 in materials or services for the school (school coordinators also received \$150, consistent across all three conditions). Table 11 displays information on the types of non-monetary materials or services offered in Condition 3.

**Table 11. Non-Monetary Incentive Choices for Schools in Experimental Condition 3**

<b>Incentive (Approximate Value = \$400)</b>
Registration for Association for Middle Level Education (AMLE) or Regional Annual Meeting
Two-Year School Membership in AMLE
Membership in Regional ML Organization plus Subscriptions to Professional Journals
Professional Development Webinar
School Supplies
Library of Middle Level Publications

The original analytic plans for this incentive experiment called for combining results from the IVFT and OFT1 schools to increase the possibility of detecting differences with statistical significance. While we have provided an analysis that uses the combined results from the IVFT and OFT1, given differences between those groups that affect their predictive value regarding MS1, we have also provided individual analyses for IVFT and OFT1. The IVFT set of schools was purposively selected while the OFT1 schools were selected using a probability proportional to size sampling method that mimics the method employed in MS1. Also, the IVFT was fielded with a shortened school recruitment window, making it likely that recruitment results were less than we expected in MS1. In addition, many districts refused to allow their sampled schools to be contacted for the study. This meant that sampled schools in those districts never actually received an incentive offer. To assess the degree to which the level of school incentive impacted participation rates, we analyzed results both including and excluding schools in districts that refused. Table 12 presents results for schools in all districts. Due to small sample sizes of schools, tests of statistical significance may not be particularly informative because of a lack of power. However, it would appear that, for example, in OFT1 the \$400 condition resulted in a higher participation rate than the \$200 condition (Table 12, far right column).

**Table 12. School Participation Rates by Experimental Condition (All Districts)**

Experimental Condition		IVFT and OFT1 Combined Participation Rate (Number of Schools)	IVFT Participation Rate (Number of Schools)	OFT1 Participation Rate (Number of Schools)
1	\$200	23.1% (30 of 130)	22.9% (20 of 87)	23.3% (10 of 43)
2	\$400	27.3% (35 of 128)	22.1% (17 of 77)	35.3% (18 of 51)
3	\$400 non-monetary equivalent	29.0% (36 of 124)	25.0% (21 of 84)	37.5% (15 of 40)

Table 13 presents participation rates among schools in cooperating districts.

**Table 13. School Participation Rates by Experimental Condition (Participating Districts)**

Experimental Condition		IVFT and OFT1 Combined Participation Rate (Number of Schools)	IVFT Participation Rate (Number of Schools)	OFT1 Participation Rate (Number of Schools)
1	\$200	39.5% (30 of 76)	37.7% (20 of 53)	43.5% (10 of 23)
2	\$400	49.3% (35 of 71)	37.8% (17 of 45)	69.2% (18 of 26)
3	\$400 non-monetary equivalent	42.9% (36 of 84)	34.4% (21 of 61)	65.2% (15 of 23)

Table 14 presents participation rates for schools in all districts, when the two higher incentive level conditions are combined. In keeping with the information presented in Table 9, due to small sample sizes of schools, tests of

statistical significance may not be particularly informative because of a lack of power. However, similar to the earlier results, it would appear that, for example, in OFT1 the \$400 condition (regardless of whether it was monetary or non-monetary) was connected to a higher participation rate than the \$200 condition (Table 11).

**Table 14. School Participation Rates by Combined Experimental Condition (All Districts)**

Experimental Condition		IVFT and OFT1 Combined Participation Rate (Number of Schools)	IVFT Participation Rate (Number of Schools)	OFT1 Participation Rate (Number of Schools)
1	\$200	23.1% (30 of 130)	22.9% (20 of 87)	23.3% (10 of 43)
2 and 3	\$400 or \$400 non-monetary equivalent	28.2% (71 of 252)	23.6% (38 of 161)	36.3% (33 of 91)

Table 15 presents participation rates among schools in cooperating districts, when the two higher incentive level conditions are combined.

**Table 15. School Participation Rates by Combined Experimental Condition (Participating Districts)**

Experimental Condition		IVFT and OFT1 Combined Participation Rate (Number of Schools)	IVFT Participation Rate (Number of Schools)	OFT1 Participation Rate (Number of Schools)
1	\$200	39.5% (30 of 76)	37.7% (20 of 53)	43.5% (10 of 23)
2 and 3	\$400 or \$400 non-monetary equivalent	45.8% (71 of 155)	35.9% (38 of 106)	67.4% (33 of 49)

Based on these results, we offered MS1 schools \$400 in the form of a check or non-monetary equivalent (approved in OMB# 1850-0911 v.13) and, starting in June 2017, we began offering an additional \$200 (for a total of \$600) to schools associated with districts that initially decline to participate and that had one or more sample schools that were designated as having “higher” counts of students in the focal disability groups (OMB# 1850-0911 v.15). Despite this approach, MS1 did not reach its target participation. School officials reported different reasons for not participating, such as: the study burden; too many other assessments, research studies, or initiatives; loss of instructional time; no direct benefit to the school, staff, or students; and lack of resources at the school. While some schools appreciated the incentive offer, most that did not participate said their decision would not be impacted by a higher monetary incentive. The \$600 incentive was specifically used to help boost participation among the schools that had higher counts of students in the focal disability groups. Since the study is no longer trying to achieve a representative sample of students in focal disability groups for the follow-up, the \$600 incentive is not requested for MS2. In-person recruitment attempts were extremely successful for schools reluctant to participate or who were difficult to reach by phone or email. Of the 239 schools receiving an in-person recruitment visit, 78 schools participated in MS1 (33 percent). We plan to use this approach more proactively for MS2. We also found that participating schools in the base year are likely to participate again in the follow-up study. Each of the 45 participating OFT1 schools participated in OFT2. Fewer students participated in OFT2 than OFT1, which likely resulted from the fact that not all students were still attending their OFT1 schools and were contacted to participate outside of school. Student participation in out-of-school data collection is lower than in school, which resulted in fewer student participants in the OFT2. For MS2, we will follow 100 percent of the students who participated in MS1 to maximize the number of participants in MS2.

We are still analyzing results from MS1 and OFT2. We will provide additional details about MS1 and OFT2 recruitment and school debriefing survey results in the MS2 data collection request in 2019.

**Parent-level Incentive Experiment.** OFT1 evaluated baseline incentive amounts and incentive boosts differentiated between parents of students with EMN and all other parents. OFT1 entailed randomized parent assignment such that parent incentive amounts differed between schools but not within schools (with the exception of incentive amounts for parents of students with EMN).

- For the baseline incentive, parents of students with EMN were offered either \$20 or \$30.
- Parents of non-EMN students were offered \$0, \$10, or \$20 at baseline.
- In early March, phase 2 entailed an incentive boost offer of an additional \$10 for parents of students with EMN. Parents of non-EMN students were offered an additional \$0 or \$10 to the baseline amount.
- In early April, phase 3 commenced in which parents of students with EMN were offered \$10 more. Parents of

non-EMN students were offered either no additional boost or a cumulative offer of \$40.

Parent contact information was received from schools on a flow basis and invitations to complete the parent survey were sent as the contact information became available. This meant that some cases had an abbreviated phase 1; some cases never reached phase 2; and some cases never reached phase 3. The parent data collection took place between February 1 and May 31, 2017. This field period was abbreviated compared to what was used in MS1, for which data collection began in January and continued through August 2018.

Table 16 shows OFT1 parent participation by baseline incentive offer for non-EMN cases. In OFT1, parents offered \$20 at baseline had a higher participation rate. Therefore, in MS1, parents of students not having an EMN IEP designation were offered \$20 at baseline.

**Table 16. OFT1 Parent Participation by Baseline Incentive Offer: parents of students not having EMN IEP designation**

Baseline Incentive	Selected N	Completes	
		N	Percent
\$0	320	105	32.81
\$10	653	245	37.52
\$20	660	287	43.48*

\* Significantly higher than \$0 (p<0.05).

Table 17 shows OFT1 parent participation by baseline incentive offer for EMN cases. Due to small sample sizes, tests of statistical significance may not be particularly informative because of a lack of power. In OFT1, parents of EMN students offered \$30 at baseline had a substantively higher participation rate. Therefore, in MS1, parents of EMN students were offered \$30 at baseline.

**Table 17. OFT1 Parent Participation by Baseline Incentive Offer: parents of students having EMN IEP designation**

Baseline Incentive	Selected N	Completes	
		N	Percent
\$20	32	7	21.88
\$30	29	10	34.48

In terms of what amount of boost might relate to higher participation, table 15 shows that for non-EMN parent cases reaching phase 2, in which a \$10 boost was compared with no boost, those offered the \$10 boost had a significantly higher response rate than those not given the \$10 boost offer (see Table 18).

**Table 18. OFT1 Parent Participation by First Incentive Boost Offer: parents of students not having EMN IEP designation**

Incentive Boost	Selected N	Completes	
		N	Percent
No boost	633	198	31.28
\$10 boost	415	155	37.35*

\* Significantly higher than no boost (p<0.05).

Table 19 shows the results of a \$10 first incentive boost for parents of EMN cases. There was no experimentation, given that all pending cases received a \$10 boost offer at the start of phase 2 and another \$10 boost offer at the start of phase 3. Due to small sample sizes, tests of statistical significance may not be particularly informative because of a lack of power. In OFT1, parents of EMN students who were offered a cumulative \$40 incentive (including a \$10 boost) had a substantively higher participation rate. Therefore, in MS1, parents of EMN students were offered \$30 at baseline and a \$10 boost.

**Table 19. OFT1 Parent Participation by First Incentive Boost Offer: parents of students having EMN IEP designation**

Cumulative Incentive	Selected N	Completes	
		N	Percent
\$30 (\$10 boost)	25	6	24.00
\$40 (\$10 boost)	21	8	38.10

In analyzing the effectiveness of a second boost offer, the cumulative offer of \$40 for non-EMN cases and \$50 for EMN cases did not result in higher response.

Given the OFT1 boost offer results, non-EMN pending nonresponding parent cases in MS1 received a single boost offer of \$10 (for a cumulative offer of \$30) six weeks after initial contact, and EMN pending nonresponding parent cases also received a single \$10 boost offer (for a cumulative offer of \$40) six weeks after initial contact.

Because we are not pursuing the IEP oversample in MS2, we are not currently requesting a differential incentive for MS2. In MS2, as in MS1, parents will receive \$20.

## **B.5 Individuals Responsible for Study Design and Performance**

The following individuals at the National Center for Education Statistics (NCES) are responsible for MGLS:2017: Carolyn Fidelman, Gail Mulligan, Chris Chapman, and Marilyn Seastrom. The following individuals at RTI are responsible for the study: Dan Pratt, Debbie Herget, and David Wilson, along with subcontractor staff: Sally Atkins-Burnett (Mathematica) and Michelle Najarian (ETS).