

**National Teacher and Principal Survey
of 2020-21 (NTPS 2020-21)
Preliminary Field Activities**

OMB# 1850-0598 v.27

Supporting Statement

Part B

**National Center for Education Statistics (NCES)
U.S. Department of Education**

June 2018

revised November 2019

Table of Contents

<u>Section</u>	<u>Page</u>
Part B	Collection of Information Employing Statistical Methods.....4
B.1	Universe, Sample Design, and Estimation.....4
B.1.1	Universe and Sample Design: Respondent Universe.....4
B.1.1.1	Schools.....4
B.1.1.2	Teachers.....5
B.1.2	Precision Requirements and Sample Sizes.....5
B.2	Procedures for the Collection of Information.....10
B.2.1	Preliminary Field Activities.....10
B.2.1.1	Special Contact District Operation.....10
B.2.1.2	School Pre-Contact Letters.....11
B.2.1.3	Endorsements from key groups and affiliations.....12
B.2.2	School-level Data Collection Procedures.....12
B.2.2.1	Schools without Vendor Data Available.....13
B.2.2.2	Schools with Vendor Data Available.....13
B.2.3	Teacher Data Collection.....15
B.3	Methods to Secure Cooperation, Maximize Response Rates, and Deal with Nonresponse.....15
B.3.1	Methods to Secure Cooperation and Maximize Response Rates.....15
B.3.2	Methods to Minimize Nonresponse.....20
B.4	Tests of Methods and Procedures.....24
B.4.1	Tests Influencing the Design of NTPS 2020-21.....24
B.4.2	Tests Included in the Design of NTPS 2020-21.....30
B.5	Individuals Responsible for Study Design and Performance.....35

Part B Collection of Information Employing Statistical Methods

This request is to contact districts and schools in order to begin preliminary activities for the NTPS 2020-21 collection, including: (a) contacting and seeking research approvals from special handling districts, where applicable, and (b) notifying sampled schools of their selection for the survey and to verify mailing addresses. This document describes the preliminary plans for NTPS 2020-21 sample design, estimation details, and recruitment and data collection procedures based on the NTPS 2017-18 design. The NTPS 2020-21 Main Study clearance request, which will be published for public comment in winter 2019-20, will describe the final sample design, recruitment, and data collection plans.

B.1 Universe, Sample Design, and Estimation

Section B.1.1 includes information on the study universe of interest and sample design planned for NTPS 2020-21. Section B.1.2 describes the precision requirements and target sample sizes set out for the study.

B.1.1 Universe and Sample Design: Respondent Universe

B.1.1.1 Schools

The respondent universe for NTPS 2020-21 data collection consists of approximately 94,000 public schools and 24,000 private schools in the 50 U.S. states and the District of Columbia (DC) that offer instruction in any of grades 1-12 or the ungraded equivalent. To be eligible for inclusion in the sample, schools must: provide classroom instruction to students; have one or more teachers who provide instruction; serve students in at least one of grades 1-12 or the ungraded equivalent; be located in one or more buildings, and be located in the continental United States.

The most recent final Common Core of Data (CCD) file available from NCES at the time of sampling in spring 2020 will be used to construct the public school frame.¹ The respondent universe for charter schools will be identified as those public charter schools that meet the NTPS definition of an eligible school found on the CCD. The universe has been adjusted to remove kindergarten-terminal schools, which are not eligible for NTPS. Table 1 presents the number of public schools on the 2017-18 CCD by urbanicity and school level. The CCD that will be used to construct the sample for NTPS 2020-21 is not yet available at the time of this submittal. The NTPS 2020-21 school sample will be drawn in April-May 2020 and we will begin to contact sampled schools in June 2020.

Table 1. Respondent universe by school level and urbanicity for the proposed public school sample, based on the 2017-18 Common Core of Data (CCD)

Region	School level ²				Total
	Primary	Middle	High	Combined	
Central City	15,265	3,853	5,998	948	26,064
Suburban	17,742	5,495	6,150	801	30,188
Town	5,714	2,392	3,623	507	12,236
Rural	11,794	3,493	6,655	2,824	24,766
Total	50,515	15,233	22,426	5,080	93,254

SOURCE: 2017-18 CCD.

The private school frame will be drawn from the 2017-18 Private School Survey (PSS) frame. Preschools and schools with kindergarten as the highest grade will be excluded. Table 2 presents the number of private

¹ If the 2018-19 CCD is not available as of early January in 2020, the most recently available CCD as of that date will be used instead.

² Rather than defining school level for public schools by the highest and lowest grades offered at the school, starting with the 2017-18 CCD, ED revised the logic to derive LEVEL with the primary goal of recategorizing as many of the schools in the "Other" category (for NTPS, these schools are categorized as Combined) into categories that are more meaningful for data users. In particular, in Table 1, primary schools are schools in which grades K, 1, 2, 3, or 4 are offered and the number of primary grades is greater than number of middle grades; middle schools are schools in which grades 5, 6, 7, or 8 are offered and the number of middle grades is greater than number of elementary or secondary grades; high school are schools in which grades 9, 10, 11, or 12 are offered and the number of high grades is greater than number of middle grades; and combined schools are schools with both primary and high grades.

schools on the 2017-18 PSS universe by urbanicity and school level.

Table 2. Respondent universe by school level and urbanicity for the proposed private school sample, based on the 2017-18 Private School Survey (PSS)

Region	School level			Total
	Elementary	Secondary	Combined	
Central City	4,621	1,070	2,555	8,246
Suburban	4,649	854	2,903	8,406
Town	1,234	148	731	2,113
Rural	2,735	447	1,882	5,064
Total	13,239	2,519	8,071	23,829

SOURCE: 2017-18 PSS.

Details of the first-stage sample design of schools are provided in section 2.

B.1.1.2 Teachers

Teachers will be randomly sampled within the second design stage either: (a) from teacher lists purchased from a vendor and evaluated for accuracy through a clerical look-up operation, or if vendor list is not available for the school, obtained through a clerical look-up operation – then provided to the school in a prepopulated Teacher Listing Form (TLF) for their verification and corrections to the list (e.g., adding and deleting teachers from the provided list as needed); or (b) for schools without acceptable vendor or clerically obtainable data, from the roster information provided in a TLF by each participating sampled school (see section B.3.2, subsection 3 [Use vendor lists for teacher sampling], of this document for more detail).

Teachers within the sampled school are classified as ineligible for NTPS if they are a short-term substitute teacher, student teacher, a teacher’s aide, or do not teach any of grades K-12 or comparable ungraded levels. The information that classifies teachers as ineligible is obtained from the Teacher Questionnaire. Details of the second-stage sample design of teachers are provided in section 2.

B.1.2 Precision Requirements and Sample Sizes

This section details the school sample sizes and precision requirements for the NTPS 2020-21 public and private school samples.

The final NTPS 2020-21 public school sample will include approximately:

- 10,600 schools and school principals (9,300 traditional public and 1,300 public charter), with the goal of at least 7,632 interviews for each; and
- 53,400 teachers (46,900 traditional public and 6,500 public charter), with the goal of at least 43,254 interviews.

The final NTPS 2020-21 private school sample will include approximately:

- 3,000 schools and school principals, with the goal of at least 1,950 interviews for each; and
- 6,800 teachers, with the goal of at least 5,440 interviews.

Sampling – Public Schools

The 2020-21 NTPS oversampling stratification will be based preliminarily on the following domains:

- Charter/Non-charter;
- School Level (primary, middle, high, combined);
- Urbanicity (city, suburb, town, rural);
- State Tier (based on state).

The NCES standards for publishability indicate that the coefficient of variation (CV) must be no larger than 50%, and if the CV is between 30% and 50%, the estimates are published with a caveat. For a population proportion of 20%, a CV of 30% corresponds to a standard error of 6%. In order to make sure that we don’t

fall below the CV 30% minimum with the uncertainties about response and about exact values of design effects, we set as a target a CV of 25% as a lower bound. This corresponds to an expected standard error of 5%. This considerably reduces the chance of falling below the 30% boundary (if we set 30% itself as the target, we would be below it one-half of the time). Our target goal then for each state is to make sure that the expected standard error is no larger than 5% for a population proportion of 20% (a CV of 25%), at both the school and teacher level. The teacher sample size for a sampled school should be proportional to the product of the final teacher multiplier (based on the expected attrition adjustment factors), final school oversampling factor, and measure of size for the school (square root of the number of full-time teachers).

Table 3 presents a portion of the analysis for public schools by school type, grade level, urbanicity, and poverty status. Presented are the anticipated number of responding schools or principals for the NTPS design and the expected precision based on analyses using the NTPS 2017-18 final response rates and CV of 25%.

Table 3. NTPS 2020-21 public school domain expected interviews, standard errors, and design effects with state oversampling to achieve 25% CV or less

Domain	Frame Schools	Expected Sample Size (completed interviews)	Expected Standard Error	Design Effect
All	93,634	7,632	0.63%	1.68
Charter	6,819	878	1.71%	1.41
Non-charter	86,815	6,754	0.67%	1.66
Primary	51,470	3,482	0.88%	1.49
Middle	14,177	1,275	1.43%	1.42
High	20,406	1,952	1.42%	2.17
Combined	7,581	923	1.90%	1.83
City	26,085	2,212	1.17%	1.67
Suburban	30,305	2,267	1.13%	1.58
Town	12,630	1,185	1.61%	1.69
Rural	24,614	1,968	1.29%	1.79
Enrollment < 100	7,946	357	3.54%	2.45
100 <= Enrollment < 300	7,341	526	2.36%	1.60
300 <= Enrollment < 500	36,097	2,725	1.00%	1.49
500 <= Enrollment < 750	23,395	1,882	1.15%	1.38
750 <= Enrollment < 1,000	9,447	909	1.64%	1.34
1,000 <= Enrollment	9,408	1,234	1.36%	1.26
Percent FRPL < 35%	26,848	2,311	1.21%	1.86
35% <= Percent FRPL < 50%	15,724	1,389	1.44%	1.58
50% <= Percent FRPL < 75%	26,327	2,082	1.18%	1.60
75% <= Percent FRPL	23,900	1,763	1.28%	1.59
Not Participating FRPL	835	85	8.30%	3.26

Table 4 presents the analogous precision analysis for public schools by state.

Table 4. NTPS 2020-21 public school expected interviews, standard errors, and design effects by state with state oversampling to achieve 25% CV or less

State	Frame Schools	Expected Completed Interviews	Expected Standard Error	Design Effect
All	93,634	7,632	0.63%	1.68
AK	510	122	4.96%	1.65
WY	339	96	4.99%	1.30
DC	219	69	4.98%	0.95
VT	315	81	4.99%	1.11
SD	496	112	4.98%	1.52
MT	563	113	4.99%	1.54
DE	218	72	4.98%	0.98
RI	297	76	4.98%	1.04

State	Frame Schools	Expected Completed Interviews	Expected Standard Error	Design Effect
ND	421	91	4.98%	1.24
HI	292	79	4.99%	1.08
NH	455	88	5.00%	1.20
ID	706	101	4.98%	1.38
ME	613	90	5.00%	1.23
NV	666	107	5.00%	1.47
WV	740	92	4.98%	1.26
NM	835	105	4.98%	1.42
NE	870	106	4.99%	1.45
CT	1,209	138	4.99%	1.88
UT	993	103	4.97%	1.38
OR	1,227	104	4.99%	1.42
MS	1,071	98	4.99%	1.34
IA	1,186	100	5.00%	1.37
AR	960	97	4.99%	1.32
KS	1,257	98	4.99%	1.35
KY	1,462	105	5.00%	1.44
MN	2,066	153	4.97%	2.07
SC	1,231	96	4.92%	1.28
AL	1,508	104	5.00%	1.42
AZ	2,306	165	4.99%	2.26
MD	1,421	99	4.98%	1.35
OK	1,441	105	4.99%	1.44
LA	1,349	101	4.99%	1.39
CO	1,671	117	4.78%	1.47
WA	2,257	124	4.77%	1.54
MA	1,786	120	4.66%	1.43
IN	1,881	120	4.54%	1.35
WI	1,943	124	4.52%	1.40
TN	1,787	122	4.46%	1.32
MO	2,008	142	4.27%	1.42
VA	2,072	150	4.01%	1.32
NJ	2,474	171	3.90%	1.43
GA	2,303	177	3.72%	1.34
MI	3,302	211	3.72%	1.59
NC	2,638	189	3.58%	1.33
PA	3,029	214	3.41%	1.37
OH	3,357	220	3.37%	1.37
IL	3,920	238	3.30%	1.42
FL	4,047	326	2.95%	1.56
NY	4,780	354	2.67%	1.39
TX	8,880	639	2.28%	1.82
CA	10,257	609	2.21%	1.63

Table 5 provides the analogous precision analysis for public school teachers. The expected standard errors were calculated based on analyses using the NTPS 2017-18 final response rates and CV of 25%.

Table 5. NTPS 2020-21 major domain expected public school teacher interviews, standard errors, and design effects with state oversampling to achieve 25% CV or less

Domain	Frame Full-Time Equivalent Teachers (in 1000s)	Expected Teacher Completed Interviews	Expected Standard Error	Design Effect
All	3,137.6	43,254	0.38%	3.08
Charter	160.4	4,328	1.07%	2.48
Non-charter	2,977.2	38,925	0.39%	3.01

Domain	Frame Full-Time Equivalent Teachers (in 1000s)	Expected Teacher Completed Interviews	Expected Standard Error	Design Effect
Primary	1,487.2	16,999	0.57%	2.80
Middle	548.3	7,899	0.86%	2.95
High	912.8	13,725	0.70%	3.34
Combined	189.3	4,629	1.07%	2.67
City	928.7	12,939	0.69%	3.08
Suburban	1,214.0	14,301	0.65%	3.02
Town	365.0	6,326	0.96%	2.89
Rural	629.8	9,688	0.79%	3.01
Enrollment < 100	38.4	816	2.29%	2.15
100 <= Enrollment < 300	90.3	1,766	1.67%	2.46
300 <= Enrollment < 500	863.4	12,461	0.66%	2.76
500 <= Enrollment < 750	864.9	11,868	0.72%	3.09
750 <= Enrollment < 1,000	475.8	6,150	1.01%	3.18
1,000 <= Enrollment	804.7	10,194	0.81%	3.38
Percent FRPL < 35%	969.0	13,704	0.69%	3.24
35% <= Percent FRPL <	541.1	7,905	0.89%	3.15
50% <= Percent FRPL <	861.7	11,631	0.71%	2.97
75% <= Percent FRPL	737.8	9,487	0.79%	2.94
Not Participating FRPL	28.0	526	3.64%	3.49

Sampling – Private Schools

The NTPS private school sample will be roughly the same as the private school survey from Schools and Staffing Survey (SASS) 2011-12: a school sample size of 3,000 and a number of completed school interviews of about 1,750. For the 2017-18 NTPS, the sample size was 4,000 (expecting 2,266 completed school interviews) to achieve sufficient power for an embedded experiment.

The sampling plan oversamples as follows:

- Elementary schools are sampled at a rate proportional to the measure of size;
- Secondary schools are sampled at a rate proportional to 3 times the measure of size;
- Combined schools are sampled at a rate proportional to 1.2 times the measure of size;
- The oversampling rates for Nonsectarian schools are increased by an additional factor of 1.25 (e.g. the oversampling rate for Nonsectarian secondary schools is $3 \times 1.25 = 3.75$); and
- The oversampling rates for Baptist schools are increased by an additional factor of 1.1 (e.g. the oversampling rate for Baptist combined schools is $1.2 \times 1.1 = 1.32$).

Under this design, not only all the precision goals are achieved but also all of the CVs for the teacher domains are less than 25% except for the vo-tech teacher domain.

For teachers, the expected number of completed interviews is estimated to be proportional to the product of the final school sampling factor and the number of full time equivalent (FTE) teachers over schools in the domain. The overall target number of completed interviews is 4,500. Assuming the attrition rate for the 2020-21 NTPS will be similar to the rate for 2017-18 NTPS, the sample size needs to be 6,800 teachers in order to yield the expected number of completed teacher interviews. The teacher sample size for a sampled school should be proportional to the product of the final teacher multiplier (based on the expected attrition adjustment factors), final school oversampling factor, and measure of size for the school (square root of the number of full-time teachers).

Tables 6 and 7 show expected sample sizes, standard errors, and CVs for population percentages of 20% by key domains of school type, grade level, and region. Table 6 presents a portion of the analysis for private schools by affiliation, grade level, and region.

Table 6. NTPS 2017-18 private school domain expected interviews, standard errors, and design effects

School domain	Frame schools	Expected completed school interviews	For 20% population percentage				Min pop % for CV <30%
			Expected standard error	95% CI half-width	Design effect	CV	
All	24,984	1,950	1.24%	2.44%	1.70	6.22%	1.06%
Catholic	6,428	598	2.13%	4.18%	1.53	10.66%	3.06%
Other religious	12,006	740	2.00%	3.92%	1.66	10.01%	2.71%
Nonsectarian	6,550	612	2.17%	4.25%	1.62	10.84%	3.16%
Elementary	14,030	702	1.86%	3.64%	1.36	9.29%	2.34%
Secondary	2,609	558	1.96%	3.85%	1.21	9.81%	2.61%
Combined	8,345	691	1.94%	3.80%	1.45	9.69%	2.54%
Northeast	6,018	540	2.57%	5.04%	2.00	12.86%	4.39%
Midwest	6,024	416	2.66%	5.21%	1.65	13.30%	4.68%
South	8,081	626	2.10%	4.11%	1.55	10.48%	2.96%
West	4,861	368	2.79%	5.47%	1.61	13.96%	5.13%

Table 7 provides the analogous precision analysis for private school teachers.

Table 7. NTPS 2017-18 major domain expected private school teacher interviews for the NTPS 2020-21

School domain	Frame teachers (FTE)	Expected completed teacher interviews	For 20% population percentage				Min pop % for CV <30%
			Expected standard error	95% CI half-width	Design effect	CV	
All	449,441	5,440	1.02%	2.00%	2.91	5.09%	0.71%
Catholic	136,810	1,812	1.84%	3.61%	3.17	9.20%	2.30%
Other religious	183,015	1,896	1.65%	3.23%	2.67	8.25%	1.86%
Nonsectarian	129,616	1,732	1.81%	3.54%	2.92	9.03%	2.21%
Elementary	174,278	1,433	1.74%	3.42%	2.25	8.72%	2.07%
Secondary	67,254	1,822	1.69%	3.30%	2.68	8.43%	1.93%
Combined	207,910	2,186	1.55%	3.04%	2.72	7.76%	1.64%
Northeast	128,835	1,630	1.95%	3.81%	3.19	9.73%	2.56%
Midwest	88,259	1,092	2.24%	4.39%	2.83	11.20%	3.37%
South	154,954	1,749	1.75%	3.43%	2.77	8.76%	2.09%
West	77,393	970	2.38%	4.66%	2.83	11.88%	3.77%

The 2020-21 NTPS will have an implicit stratification based on the proposed systematic sampling sort order, which uses a hierarchy of the following domains, as was done for NTPS 2017-18:

- Three-level affiliation (Catholic, non-Catholic religious, nonreligious);
- Three-level school span (elementary, secondary, combined);
- Four-level Census region (Northeast, South, Central, Midwest);
- Four-level urbanicity (city, suburb, town, rural);
- Eleven-level affiliation;
- Five-level school size (enrollment <100, 100-199, 200-499, 500-749, 750+);
- State;
- Highest grade;

- Twelve-level urbanicity (large city, medium-sized city, small city, etc.);
- Zip code;
- School enrollment;
- PIN number.

Sampling – Principals within All Schools

For each sampled traditional public, public charter, and private school, the principal will be included in the survey as a result of the school being selected.

Survey Weights

Schools, principals, and teachers will be weighted by the inverse of the probability of selection. The final weight will contain adjustments for nonresponse and any other sampling or field considerations that arise after the sample has been drawn.

Response Rates

We expect the NTPS 2020-21 response rates to approximate those of NTPS 2017-18 (for public and private schools) or to fall lower given the long-term trend in declining response rates for federal surveys. Table 8 provides the base-weighted response rates for NTPS 2015-16, and Table 9 provides the base-weighted response rates for NTPS 2017-18. Note that private schools were not included in NTPS 2015-16 and are therefore not included in table 8.

Table 8. Base-weighted response rates for NTPS 2015-16 by respondent and school type

School Type	Unit of Observation		
	Teacher	Principal	School
Traditional Public	67.9	71.8	72.5
Public Charter	66.2	71.9	73.2

Table 9. Base-weighted response rates for NTPS 2017-18 by respondent and school type

School Type	Unit of Observation		
	Teacher	Principal	School
Traditional Public	76.9	70.7	72.9
Public Charter	75.4	63.4	67.5
Private	75.9	62.6	64.5

B.2 Procedures for the Collection of Information

Section B.2.1 describes the operations for the preliminary field activities for NTPS 2020-21, with Section B.2.1.1 describing special districts operation and Section B.2.1.2 the school pre-contact letter. Section B.2.2 describes school-level data collection procedures for the school-level questionnaires (i.e., Teacher Listing Form, School Questionnaire, and Principal Questionnaire), with Section B.2.2.1 describing the procedures to be used for schools with acceptable vendor data and Section B.2.2.2 for schools without acceptable vendor data. Section B.2.3 describes data collection procedures for the Teacher Questionnaire.

B.2.1 Preliminary Field Activities

B.2.1.1 Special Contact District Operation

Special contact districts require that a research application be submitted to and reviewed by the district before they will allow schools under their jurisdiction to participate in a study. Districts are identified as “special contact districts” prior to data collection because they were flagged as such during previous cycles of SASS, NTPS, or by other NCES studies. Special contact districts are also identified during data collection when districts indicate that they will not complete the survey until a research application is submitted, reviewed, and approved.

Once a district is identified as a special contact district, basic information about the district is obtained from the NCES Common Core of Data (CCD). The basic information includes the NCES LEA ID number, district name, city, and state. The next step is to search the district's website for a point of contact and any information available about the district's requirements for conducting external research. Some districts identified as being a special contact district from the previous cycle may be incorrect and staff will verify whether a given district has requirements for conducting external research before proceeding.

The following are examples of the type of information that will be gathered from each district's website in order to prepare a research application for submission to this district:

- Name and contact information for the district office or department that reviews applications to conduct external research, and the name and contact information of the person in charge of that office.
- Information about review schedules and submission deadlines.
- Whether application fees are required, and if so, how much.
- Whether a district sponsor is required.
- Whether an online application is required, and if so, the link to the application if possible.
- Information about research topics and/or agenda on which the district is focusing.
- The web link to the main research department or office website.
- Research guidelines, instructions, application forms, District Action Plans, Strategic Plan or Goals, if any.

Recruitment staff will contact districts by phone and email to obtain key information not listed on the district's website, (e.g., requirements for the research application, research application submission deadlines, etc.).

NTPS staff developed a generic research application that covers the information typically requested in district research applications. Staff will customize the generic research application to each district's specific requirements that need to be addressed or included in the research application (e.g., how the study addresses key district goals, or inclusion of a district study sponsor), or submit the generic application with minimal changes to districts that do not have specific application requirements.

Using the information obtained from the district website or phone or email exchanges, a district research request packet will be prepared. Each research application will include the following documents, where applicable:

- District research application cover letter;
- Research application (district-specific or generic, as required by the district);
- Study summary;
- FAQ document;
- Special contact district approval form;
- Participant informed consent form (if required by the district);
- NTPS Project Director's resume;
- Copy of questionnaires; and
- Application fee (if required by the district).

Where required or requested, applications will include the draft 2020-21 NTPS questionnaires, which are the 2015-16 questionnaires included in Appendix B of this submission. The 2017-18 NTPS questionnaires will be provided to districts that request them. Other information about the study may be required by the district and will be included with the application or provided upon request.

Approximately one week after the application is submitted to the district (either electronically or in hard copy, as required by the district), NTPS district recruitment staff will contact the district's research office to confirm receipt of the package and to ask when the district expects to review the research application and when a decision will be made. If additional information is requested by the district (e.g., the list of sampled schools), recruitment staff will follow up on such requests and will be available to answer any questions the

district may have throughout the data collection period.

Some districts charge a fee (~\$50-200) to process research application requests, which will be paid as necessary. Special district operations will begin by contacting up to 100 “certainty” special contact districts for which, due to their size, it is certain that at least one school from their jurisdiction will be randomly sampled. Other special contact districts will be contacted after the sample is drawn in the spring of 2020.

B.2.1.2 School Pre-Contact Letters

The school pre-contact letter is to verify school mailing addresses and to inform schools about the upcoming data collection. A letter is sent to each sampled school informing them of their selection for the study. About 4% of all school addresses get corrected by the U.S. Post Office in response to the pre-contact letter, saving time and effort during the actual data collection period.

B.2.1.3 Endorsements from key groups and affiliations

The level of interest and cooperation demonstrated by key groups can often greatly influence the degree of participation of survey respondents. Endorsements will be sought from national, state, and private K-12 organizations and agencies, and will be listed on recruitment materials sent to NTPS 2020-21 sample members (see section B.3.1 of this document for more detail).

B.2.2 School-level Data Collection Procedures

Planned school-level data collection procedures for NTPS 2020-21 are summarized in Exhibit 1. The final details of all school-level data collection procedures and materials will be provided in the NTPS 2020-21 Main Study clearance request in winter 2019-20.

In July 2020, all schools will receive an advance (a.k.a., pre-contact) letter addressed to the principal at the school address (Appendix A). The letter will include instructions for completing a brief screener interview online using the NTPS Screener internet instrument. The purpose of the screener interview is to determine the school’s eligibility for NTPS and to establish a survey coordinator. The survey coordinator will be asked to facilitate the completion of NTPS questionnaires within their school, and materials will be mailed to him or her throughout data collection. A reminder email will be sent to non-responding school principals in August 2020. Principals who do not self-screen will be contacted by telephone in mid to late August 2020.

After the advance letter and screener interview, the data collection path – specifically, the level of effort put forth to collecting a TLF from the school, which is needed to draw a sample for the Teacher Questionnaire – for each school will depend on a number of predetermined criteria. The data collection methodology employed will depend primarily on whether the school has acceptable teacher roster data available from the vendor. Schools without acceptable vendor data available will not have the vendor provided teacher roster to fall back on for the purposes of selecting a teacher sample, therefore it will be necessary to put forth additional targeted effort and resources to obtaining an accurate TLF from these schools. Secondary data collection pathing may be made based on a school’s “priority status.”

Prior to the start of NTPS 2020-21 data collection, a propensity model will be run to identify “priority” schools. The propensity model is based on a model developed for the NTPS 2015-16 and 2017-18 data collections. These “priority” schools have characteristics of schools from which it has been historically difficult to collect data and which have a potentially high impact on weighting. The priority flag takes into account both the response propensity and the base weight of a school to create a measure of a school’s potential effect on nonresponse weighting adjustments and final estimates. Schools with either an extremely high weight or an extremely low response propensity have a large response influence, meaning their nonresponse will disproportionately affect the nonresponse adjustment cell in which they are located. Thus, additional efforts are sometimes made to target data collection operations in these schools early during data collection.

In September 2020, all schools regardless of data collection path will receive an initial school package addressed to the survey coordinator at the school address. If a survey coordinator was not established during the screener interview, the package will be addressed to the principal at the school address. The package will

contain a letter to the survey coordinator or principal, and three individually sealed envelopes that contain login information for completing the TLF, Principal Questionnaire, and School Questionnaire. Principals and survey coordinators will also be contacted by email around the same time the initial packages are mailed to the sampled schools. The emails will contain the appropriate hyperlinks and User IDs to complete the NTPS questionnaires online. The exact timing of the mailout of this initial package will depend on whether the school has acceptable vendor data available and, for those schools without vendor data available, the timing of the school's completion of the screener to establish the school's survey coordinator. For schools with vendor data and schools without vendor data who self-screened (prior to the screener telephone operation), this initial package will be mailed in early September; the initial package for the remaining schools will be mailed approximately two weeks later. Following the initial mailout, all schools without vendor data and "priority schools" with vendor data will receive a telephone call from an interviewer whose goal is to alert the principal or coordinator that a package has been mailed, confirm the school's receipt of the package, and answer any questions.

About three weeks after the initial mailout, a second package will be mailed to nonresponding schools. The package will include a reminder letter to the survey coordinator or principal and replacement materials for completing the outstanding questionnaires online. Principal and survey coordinator email addresses will be used as means of reminding nonresponding school staff to complete their questionnaires.

B.2.2.1 Schools without Vendor Data Available

Following the second mailout, schools without vendor data available will receive a personal visit from a Census Bureau Field Representative (FR), with the main goal of obtaining a completed TLF from the school. The FR will also distribute sealed letters containing login information for the school and principal questionnaires. If the FR notes that the school has shown reluctance or initially refused to participate in the study, the Regional Office of the FR will send out a "letter of better understanding" to help encourage participation (Appendix A, pages 93, 95). This operation will take place from late October through Thanksgiving 2020.

Schools for which the personal visit is unsuccessful will receive a third reminder package in early January 2021. This package will be mailed to the principal at the school address and will include a reminder letter, paper versions of the principal and/or school questionnaire(s), and postage-paid addressed return envelopes. Principal and survey coordinator email addresses will be used as means of reminding nonresponding schools to complete their questionnaires.

Beginning in late January 2021, schools that have not yet completed their school-level questionnaires will be sent to a telephone reminder operation aimed at reminding the survey coordinator or school principal to complete their questionnaires. If outstanding school-level forms remain after this final mailing, one more attempt by mail (fourth and final school package), email, and telephone will be made to remind the school to complete their outstanding questionnaire(s).

B.2.2.2 Schools with Vendor Data Available

Following the second mailout, schools with vendor data available will receive a third reminder package in early November 2020. This package will be mailed to the principal at the school address and will include a reminder letter, paper versions of the principal and/or school questionnaire(s), and postage-paid addressed return envelopes. Principal and survey coordinator email addresses will be used as means of reminding nonresponding schools to complete their questionnaires.

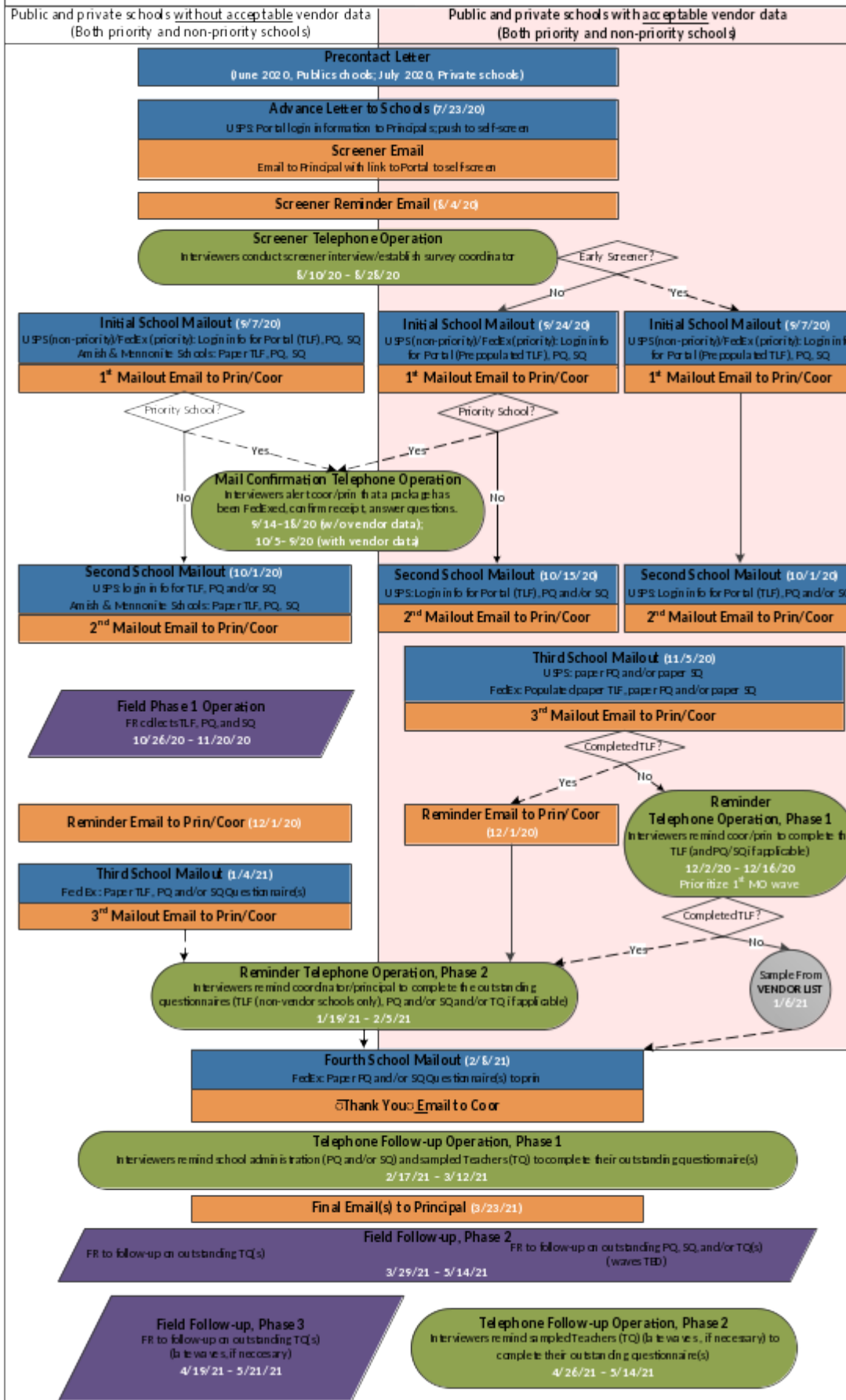
Beginning in early December 2020, schools that have not yet completed their TLF will be sent to a telephone reminder operation aimed at reminding the survey coordinator or school principal to complete their TLF and other outstanding school-level questionnaire(s). In early January 2021, schools that have not provided or verified their TLF will have their teachers sampled from the vendor provided list of teachers.

Beginning in late January 2021, schools that have not yet completed their school and/or principal questionnaires will be sent to a telephone reminder operation aimed at reminding the survey coordinator or

school principal to complete their questionnaires. If outstanding school-level forms remain after the telephone reminder operation, one more attempt by mail (fourth and final school package), email, telephone, and personal visit will be made to remind the school to complete their outstanding questionnaire(s).

Exhibit 1: 2020-21 National Teacher and Principal Survey – School-Level Data Collection Operation

2020-21 National Teacher and Principal Survey – School-Level Data Collection Operations



B.2.3 Teacher Data Collection

The final details of all teacher data collection procedures and materials will be provided in the NTPS 2020-21 Main Study clearance request in winter 2019-20.

Teachers will be sampled weekly from completed or verified TLFs throughout data collection. As teachers are sampled, they will be mailed an initial teacher package containing a letter that introduces the survey and provides the login information to complete their survey online. Around the same time, teachers for whom an email address is available will also be sent an email including the hyperlink and User ID to complete their teacher questionnaire online. If the school has a survey coordinator established, the individually-sealed teacher packages will be sent to the survey coordinator, at the school address, with a cover letter. If the school does not have a survey coordinator established, the teacher packages will be mailed individually to the sampled teachers at the school address in most cases. Exceptions may be made to this for late sampled teachers whose materials may be mailed directly to their school's principal to distribute.

If the school's teachers were sampled from a vendor or clerical list (where the school did not complete or verify a TLF), materials for the sampled teachers to complete their teacher questionnaires will be mailed directly to the teachers at their school address regardless of whether a survey coordinator was established. Exceptions may be made to this for late sampled teachers whose materials may be mailed directly to their school's survey coordinator (when there is one established) or the principal to distribute.

Teachers with a valid email address will be sent an email containing the hyperlink to the online Teacher Questionnaire and their User ID about one week after their initial mailout.

Each sampled teacher will receive as many as three reminder packages to complete their outstanding Teacher Questionnaire. Each teacher mailing will be accompanied by an email to the teacher about a week after the mailing. The first reminder letter will contain the login information for the Teacher Questionnaire (URL and User ID) and will be sent to the survey coordinator (if applicable). The second and third reminder packages will include a letter and a paper questionnaire and will be addressed directly to the sampled teachers at the school address, regardless of whether the school has a survey coordinator established.

Beginning in late January 2020, telephone interviewers will contact survey coordinators to ask them to remind their schools' sampled teachers to complete their questionnaires. Telephone interviewers and/or FRs will contact nonresponding teachers by phone or during an in-person visit from late February through May 2020.

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

This section describes the methods that NCES will use to secure cooperation, maximize response rates, and deal with nonresponse for NTPS 2020-21. Section B.3.1 details how NTPS plans to secure cooperation by leveraging its status as the primary source of information on K-12 schools and staffing in the United States. Section B.3.2 describes the methods that will be used to minimize nonresponse for NTPS 2020-21. The design is based on the results from NTPS 2017-18, which employed a number of different contact strategies aimed at boosting response rates. The final methods selected for NTPS 2020-21 will be specified in the NTPS 2020-21 Main Study submission in winter 2019-20.

B.3.1 Methods to Secure Cooperation and Maximize Response Rates

The entire survey process, starting with securing research cooperation from key public school groups and individual sample members and continuing throughout the distribution and collection of individual questionnaires, is designed to increase survey response rates. In addition, the following elements of the data collection plan, in particular, will contribute to overall success of the survey and will enhance the survey response rates.

1. ***Endorsements from key public school groups.*** The level of interest and cooperation demonstrated by key groups can often greatly influence the degree of participation of survey respondents.

Endorsements are viewed as a critical factor in soliciting cooperation from state and local education officials, and endorsing groups will be listed on recruitment materials sent to NTPS 2020-21 sample members. NCES will seek endorsements for NTPS 2020-21 from the following national organizations and agencies:

American Association of School Administrators
American Counseling Association
American Association of School Librarians
American Federation of Teachers
American Montessori Society
American School Counselors Association
Association for Middle Level Education (formerly National Middle School Association)
Association for Supervision and Curriculum Development
Association of American Educators
Council of Chief State School Officers
Council of the Great City Schools
National Association of Elementary School Principals
National Association of Secondary School Principals
National Education Association
National Parent Teacher Association
The School Superintendents Association

2. ***Endorsements from key state public school groups.*** In addition, for NTPS 2020-21, for the first time, NCES will seek endorsement from the following state organizations and agencies (the number of state organizations and agencies are capped at two per state for efficiency of solicitation operations):

Alabama

Birmingham Federation of Teachers
Alabama Education Association

Alaska

Alaska Public Employees Association
Alaska Education Association

Arizona

American Federation of Teachers - Arizona
Arizona Education Association

Arkansas

Arkansas Education Association

California

American Federation of Teachers - California
California Teachers Association

Colorado

American Federation of Teachers - Colorado
Colorado Education Association

Connecticut

American Federation of Teachers - Connecticut
Connecticut Education Association

Delaware

Delaware State Education Association

District of Columbia

Washington Teachers' Union

Florida

Florida Education Association

Georgia

American Federation of Teachers - Georgia
Georgia Association of Educators

Hawaii

Hawaii State Teachers Association

Idaho
Idaho Education Association

Illinois
American Federation of Teachers - Illinois
Illinois Education Association

Indiana
American Federation of Teachers - Indiana
Indiana State Teachers Association

Iowa
Iowa State Education Association

Kansas
American Federation of Teachers - Kansas
Kansas National Education Association

Kentucky
Kentucky Education Association

Louisiana
American Federation of Teachers - Louisiana
Louisiana Association of Educators

Maine
Maine State Employee Association
Maine Education Association

Maryland
American Federation of Teachers - Maryland
Maryland State Education Association

Massachusetts
American Federation of Teachers - Massachusetts
Massachusetts Teachers Association

Michigan
American Federation of Teachers - Michigan
Michigan Education Association

Minnesota
Education Minnesota

Mississippi
American Federation of Teachers - Mississippi
Mississippi Association of Educators

Missouri
American Federation of Teachers - Missouri
Missouri Education Association

Montana
Montana Federation of Public Employees

Nebraska
Nebraska State Education Association

Nevada
Nevada State Education Association

New Hampshire
American Federation of Teachers - New Hampshire
New Hampshire Education Association

New Jersey
American Federation of Teachers - New Jersey
New Jersey Education Association

New Mexico
American Federation of Teachers - New Mexico
New Mexico Education Association

New York
New York State United Teachers

North Carolina

North Carolina Association of Educators
 North Dakota
 North Dakota United
 Ohio
 Ohio Federation of Teachers
 Ohio Education Association
 Oklahoma
 American Federation of Teachers - Oklahoma
 Oklahoma Education Association
 Oregon
 American Federation of Teachers - Oregon
 Oregon Education Association
 Pennsylvania
 American Federation of Teachers - Pennsylvania
 Pennsylvania State Education Association
 Rhode Island
 Rhode Island Federation of Teacher and Healthcare Professionals
 Rhode Island Education Association
 South Carolina
 South Carolina Education Association
 South Dakota
 South Dakota Education Association
 Tennessee
 Tennessee Education Association
 Texas
 American Federation of Teachers - Texas
 Texas State Teachers Association
 Utah
 American Federation of Teachers - Utah
 Utah Education Association
 Vermont
 American Federation of Teachers - Vermont
 Vermont Education Association
 Virginia
 Fairfax County Federation of Teachers
 Virginia Education Association
 Washington
 American Federation of Teachers - Washington
 Washington Education Association
 West Virginia
 American Federation of Teachers - West Virginia
 West Virginia Education Association
 Wisconsin
 American Federation of Teachers - Wisconsin
 Wisconsin Education Association Council
 Wyoming
 Wyoming Education Association

3. ***Endorsements from key private school groups.*** In addition to the endorsements from key public school organizations and agencies, NCES will also seek endorsements for NTPS 2020-21 from the following private school organizations:

Agudath Israel of America/Lefkowitz Leadership Initiative
 American Association of Christian Schools
 American Association of School Librarians
 American Counseling Association
 American Federation of Teachers

American Montessori Society
 American School Counselors Association
 Association for Middle Level Education
 Association for Supervision and Curriculum Development
 Association Montessori International
 Association of American Educators
 Association of Christian Schools International
 Association of Christian Teachers and Schools
 Association of Classical Christian Schools
 Association of Military Colleges and Schools
 Association of Waldorf Schools of North America
 Christian Schools International
 Council for American Private Education
 Council of Chief State School Officers
 Council of Islamic Schools of North America
 Council of the Great City Schools
 Evangelical Lutheran Church in America
 Friends Council on Education
 General Conference of Seventh-Day Adventists
 Islamic School League of America
 Jesuit Schools Network
 Jewish Education Services of North America
 Lutheran Church-Missouri Synod
 National Association of Elementary School Principals
 National Association of Episcopal Schools
 National Association of Independent Schools
 National Association of Private Special Education Centers
 National Association of Secondary School Principals
 National Catholic Educational Association
 National Christian School Association
 National Coalition of Girls' Schools
 National Council for Private School Accreditation
 National Education Association
 National Independent Private School Association
 National Parent Teacher Association
 Office of Education, General Conference of Seventh Day Adventists
 Oral Roberts University Educational Fellowship
 Prizmah: Center for Jewish Day Schools
 RAVSAK: Jewish Community Day School Network
 Southern Baptist Association of Christian Schools
 The Association of Boarding Schools
 The Jewish Education Project
 The School Superintendents Association
 Torah Umesorah National Society for Hebrew Day Schools
 United States Conference of Catholic Bishops
 Wisconsin Evangelical Lutheran Synod

4. ***Stressing the importance of the survey and the respondents' participation.*** Official letters, with all relevant obtained endorsements listed, will be used to motivate respondents to return their survey. NTPS 2020-21 respondent letters will be sent by the U.S. Census Bureau and signed by the NCES Commissioner. Communications in the form of both letters and emails will be personalized for the principal and survey coordinators, which is expected to have positive effects on the survey response rates.
5. ***Visible support from top-level Federal, State, and local education officials.*** Support of high-level officials in the U.S. Department of Education, State Education

Agencies, and the sampled local school districts, is vital to the success of surveys of principals and teachers and thus obtaining endorsements from these officials is a critical step in NTPS data collection procedures. In addition to all routine endorsement sought and NTPS recruitment letters being signed by the NCES Commissioner, as the need arises, to secure adequate survey participation, top-level Education Department officials will be asked to support the NTPS 2020-21 data collection by endorsing the survey in writing and sending advance letters and notices directed to individual sampled districts and survey participants (principals and teachers) who need additional encouragement to participate.

B.3.2 Methods to Minimize Nonresponse

A major challenge in any survey is obtaining high response rates, and this is even more important today when response rates have been falling among federal surveys in general, and in NTPS in particular.

The main problem associated with nonresponse is the potential for nonresponse bias in the estimates produced using data collected from respondents. Bias can occur when respondents are systematically different from nonrespondents. Two approaches that will be used to reduce the potential for bias are (a) designing the data collection procedures and methods so as to reduce nonresponse (e.g., establishing survey coordinators) and (b) using statistical methods of sampling and weighting to reduce the effect of nonresponse on the estimates. While the statistical approaches are important in controlling biases and costs, the data collection procedures and methods are at the heart of a successful study.

Methods selected to minimize nonresponse in NTPS 2020-21 build upon those used in NTPS 2017-18, including actions that were taken late in the data collection to boost principal and teacher response rates.

Data Collection Strategies to Minimize Nonresponse

1. ***Minimize survey burden on schools.*** NTPS survey procedures are designed to minimize burden on schools and sampled individuals (principals and teachers), and the survey instruments have been designed to be completed as quickly and easily as possible.

To reduce burden on schools, whenever possible, the TLF (both the electronic version in the NTPS Respondent Portal and the paper TLF) will be pre-populated with vendor teacher roster data, and the school will be asked to verify the teacher information rather than provide it from scratch. Results from NTPS 2017-18 confirmed that providing pre-populated TLFs was successful in reducing burden on sampled schools.

Questionnaire design techniques have been employed to minimize item nonresponse.

Questionnaires from previous rounds of SASS and NTPS are being carefully analyzed to determine which items had the highest levels of item nonresponse. This information guides NCES in reviewing the clarity of item wording, definitions, and instructions. Items that are not considered to be effective or useful will be removed from the survey so as to streamline the questionnaires and ease the response burden.

A key design feature of NTPS is the ability to link to other NCES collections such as *EDFacts* and the Civil Rights Data Collection (CRDC). Information from these sources will be incorporated into final NTPS 2020-21 datasets to allow researchers and policymakers to analyze those data together. This will further reduce the need to collect from schools data that have already been collected from state or district education agencies.

2. ***Recruit survey coordinators.*** Successive administrations of SASS and NTPS have shown that an important procedure to help maximize response rates is to establish a school-based "survey coordinator" to serve as a primary point of contact for NTPS

staff. The use of a survey coordinator is expected to help keep response rates high, provide some minimal data quality checks, and simplify the follow-up process by having one point of contact.

3. **Use vendor lists for teacher sampling.** NTPS teacher-level response rates are calculated by multiplying response at the school level to the TLF times response at the teacher level. In the past, this has meant that if the school did not complete the TLF, teachers from that school could not be sampled, ultimately lowering the teacher response rate. The goal in NTPS 2015-16 and 2017-18 was to improve the overall teacher response rate by allowing NTPS to sample teachers from schools that have not submitted a TLF, to which effect, TLFs received from sample schools were supplemented with vendor-purchased teacher lists. When a vendor-purchased list was unavailable, a clerical operation was conducted to look up teacher information on school and/or district websites. Whenever possible, the TLF was pre-populated with vendor teacher roster data, and the school was asked to verify the teacher information rather than provide it from scratch. The vendor and clerically-researched lists were evaluated in NTPS 2017-18, NTPS 2015-16, and the NTPS 2014 pilot test and showed high levels of comparability to lists obtained directly from schools.

In NTPS 2020-21, whenever possible, TLFs will once again be pre-populated with vendor-purchased teacher lists and those obtained through a clerical look-up operation utilizing school websites, and schools will be asked to verify the teacher information rather than provide it from scratch. This approach is expected to help improve the overall teacher response rate and allow teacher sampling in schools that have not submitted a TLF as a last-ditch effort to collect data in such schools. A QC operation will occur for a subset of schools that return pre-populated TLFs or do not return a TLF and teachers are sampled directly from vendor information. This telephone operation will serve as verification that vendor data and school-edited vendor data are consistent with school staff eligible for the NTPS. More details about this operation will be specified in the NTPS 2020-21 Main Study submission in winter 2019-20.

4. **Tailor nonresponse follow up strategies.** In an effort to maximize response rates and minimize the potential for bias, NCES took a number of steps prior to the 2017-18 NTPS to identify high priority schools. These high priority schools are those to be targeted differently during data collection. The schools identified as high priority had the lowest propensity to respond (based on 2017-18 and 2015-16 NTPS data, as well as SASS data, as described below) and the highest potential impact on estimates.

As in NTPS 2017-18, schools sampled for NTPS 2020-21 will be assigned a “priority” flag based on the weighted response influence of the case. The weighted response influence takes into account both the response propensity and the base weight of a school to create a measure of a school’s potential effect on nonresponse weighting adjustments and final estimates. The weighted response influence can be calculated as:

$$\hat{\varphi}_i = \log(w_i) \left(\frac{1}{\hat{\rho}_i} \right)$$

where: $\hat{\varphi}_i$ is the final weighted response influence for a school,

w_i is the baseweight for a school, and

$\hat{\rho}_i$ is the estimated response propensity for a school

As the formula shows, a case with either an extremely high weight or an extremely low response propensity has a large response influence, meaning that their nonresponse will disproportionately affect the nonresponse adjustment cell in which they are located. Missing that particular school's information may result in biased estimates (if variables in the propensity model are related to outcomes of interest), and will certainly result in increased variance in the estimates (due to more variable final weights). In order to avoid having extreme weights drive the value of weighted response influence, the formula takes the natural log of the base weight.

The weighted response propensity model for NTPS 2017-18 was developed using data from NTPS 2015-16 and SASS 2011-12. Specific categories of variables available for evaluation include geography, urbanicity, racial/ethnic makeup, enrollment, grades levels, percent of free lunch recipients, and type of school. These variables are available in the SASS 2011-2012, NTPS 2015-16, and NTPS 2017-18 sample files, enabling us to leverage past experience in creating the response propensity models. The NTPS 2017-18 data collection plan employed propensity modeling to identify high priority schools and modified collection strategies in order to increase response rates for those schools. Results from the NTPS 2017-18 data showed that the model and strategies used helped reduce declining response rates amongst those schools and thus the same propensity model and similar collection strategies will be used in NTPS 2020-21.

The priority flag was assigned at the school level in NTPS 2017-18 and the same will be done for NTPS 2020-21. During data collection, the priority flag was used to move high priority schools and schools without a survey coordinator into field follow-up operations earlier in collection in an effort to boost response rates. Schools in the high priority group generally do not respond until later in the data collection process and ultimately require field intervention.

NTPS 2017-18 data collection for priority schools began with a personal visit from a Census Bureau Field Representative rather than beginning with a series of mailouts and telephone operations. By contacting the school staff in-person at the beginning of data collection, costs were expected to be reduced due to the omission of the mailout and telephone operations that typically precede field operations. In addition, this approach was expected to raise the probability of response by providing the field staff more time to secure the completed questionnaires. The primary focus of the operation was to obtain a complete TLF; however, the Field Representative also delivered the invitations to complete the school and principal questionnaires online. Throughout data collection, NTPS staff on a daily basis reviewed the cases assigned to field.

NTPS focuses on obtaining cooperation and improving response rates at the school level for a number of reasons. Past administrations of NTPS have shown that when cooperation is obtained at the school level, teachers and principals are more likely to respond. Additionally, evaluations of schools' response propensities have shown that the nonresponse in past administrations was driven primarily at the school level. Results showed that schools in special contact districts are the primary driving force behind low response propensity. Special districts are those that require additional applications or documentation to collect data in their schools. Nearly 80% of the schools with high propensity for non-response reside in these special districts. For this reason, resources will continue to be allocated to focus heavily on obtaining approvals from special contact districts in order to boost response rates for this

group. The final details of this operation will be specified in the NTPS 2020-21 Main Study submission in winter 2019-20.

5. **Monitor publishability and bias measures.** For NTPS 2017-18, NCES monitored data collection progress throughout survey operations in order to identify and potentially minimize problems with nonresponse. The Census Bureau created weekly “publishability” reports from their data collection tracking system that showed whether key analysis cells were large enough to provide publishable estimates as of that point in time. By monitoring this publishability metric, NCES was able to identify populations of schools for which nonresponse could hamper reporting. The 2017-18 NTPS included a contingency plan with monetary boosts to combat low response from these populations of schools identified by the publishability metric. The contingency plan was executed and the results indicated that, overall, the contingency incentive significantly increased the response rate within the selected contingency incentive domains for public school teachers. Therefore, a contingency plan will also be included in the NTPS 2020-21 and will be executed as needed based on monitoring data collection status. In addition, the results from monitoring the weekly publishability metric were considered in designing the sample and nonresponse follow-up strategies for NTPS 2020-21. The final details of nonresponse follow-up strategies will be provided in the NTPS 2020-21 Main Study submission in winter 2019-20.

During the NTPS 2017-18 NTPS, NCES also monitored R-indicators, a measure of representativeness, or lack of bias in the respondent population, on a weekly basis. The closer the R-indicator is to 1, the more balanced is the respondent population. Towards the end of data collection in 2017-18, the R-indicator for the full sample indicated that the respondent population was fairly well balanced. NCES plans to continue to monitor these two indicators in NTPS 2020-21.

6. **Personalize principal contact materials.** As was done in NTPS 2017-18, to maximize the chances that all mailed NTPS 2020-21 materials intended for the school principal successfully make it to the principal, all principal contact materials will be personalized with the principal’s name. Principals’ names are obtained from vendor-purchased school staff lists. If a principal’s name is not available from the vendor, clerical staff will research this information using school and district websites.
7. **Use of email to target principals, survey coordinators, and teachers.** NTPS 2017-18 demonstrated that email was an effective tool to drive participation in both the NTPS teacher and principal surveys. It proved that teacher email addresses could be effectively collected on the TLF, school websites, and from vendor lists of teachers; that principal email addresses could be effectively collected from school websites and from vendor purchased school data; and that survey coordinator email addresses could be effectively collected during the screener interview. Because personalized emails carry low cost and may help boost response, throughout 2020-21 NTPS data collection, teachers, principals, and survey coordinators will be contacted via email. The emails will include login information to access the NTPS online survey instruments, in addition to text inviting and subsequently reminding these respondents to complete their survey online.
8. **Use of additional reminder emails to teachers.** Previous NTPS cycles showed that response rates for late-sample wave teachers in NTPS level off and even appeared to be lower than for earlier waves of teachers. This may have been a product of the timing of school testing and late-school year activities because late-sample wave

teachers received an invitation to complete the survey during a period with a heavy school workload. It may also have been because the late sampled teachers were in schools that were either late responders to the TLF or TLF non-respondents (in instances where teachers were sampled from a teacher roster obtained from clerical research or the vendor data) and therefore may have had less support and encouragement from their principals and/or survey coordinators to complete their questionnaires. Given that additional reminder emails carry low cost and may help response rates, a total of 5 possible reminder emails will be sent to nonresponding teachers during NTPS 2020-21 data collection. There will be one email that coincides with each of the 4 teacher mailings and one final email after the fourth and final teacher mailing.

9. ***Send a “letter of better understanding” to principals and teachers.*** After the 2015-16 NTPS collection, FRs and the regional offices recommended to send “letters of better understanding” to principals and teachers who may be hesitant to complete the survey to help them gain a better understanding of the study by providing them information about how the data are used and referencing some of the published data from NTPS First Look Reports. These letters will be sent to principals, teachers, and other staff as needed in priority schools, which tend to exhibit high non-response.
10. ***Telephone and field follow-up operations for late-sampled teachers.*** NTPS 2017-18 included two additional follow-up operations aimed at collecting completed questionnaires from nonresponding teachers sampled in the later data collection waves (17-20). In previous NTPS and SASS cycles, late-sampled teachers were not eligible for inclusion in telephone follow-up and/or field follow-up operations. During the NTPS 2017-18 phase 2 telephone follow-up operation, telephone center staff made telephone calls to late-sampled teachers to remind them to complete their questionnaire and, whenever possible, collect the interview over the phone. During the phase 4 field operation, FRs made personal visits to the schools to drop off the paper form(s) and schedule a time to pick up the completed forms. Additionally, both of these operations targeted domains with publishability risks (e.g., teachers in city and charter schools). The NTPS 2020-21 includes a planned Phase 2 Telephone Follow-up Operation for which most late sampled teachers will be eligible and a Phase 3 Field Follow-up Operation to ensure that all sampled teachers receive non-response follow-up by at least telephone or a field visit (or possibly both).
11. ***Consider new methods of minimizing nonresponse.*** NCES is considering a number of additional methods to minimize nonresponse in NTPS 2020-21, including the continued use of incentives. Previously, monetary (prepaid cash) incentives were the main forms of incentives used to minimize nonresponse. The results of NTPS 2017-18 indicated that the teacher incentive significantly increased the final response rates for both public and private school teacher questionnaires. Due to these favorable results, the NTPS 2020-21 will include the use of incentives, once again, with the goal of maximizing overall teacher response. Two types of incentives will be offered in an experimental manner – a monetary incentive (prepaid cash) and a non-monetary incentive (see section B.4.2 of this document for more details).

For NTPS 2020-21, additional non-monetary incentives at the school level are also being considered as a tool to further increase response rates. Further information about incentives is provided in section B.4.2 of this document.

Statistical Approaches to Nonresponse

One of the methods employed to reduce the potential for nonresponse bias is adjustment of the sample weights to account for nonresponse. If schools or teachers with certain characteristics are systematically less

likely than others to respond to a survey, the collected data may not accurately reflect the characteristics and experiences of the nonrespondents, which can lead to bias. To adjust for this, respondents are assigned weights that, when applied, result in them representing their own characteristics and experiences as well as those of nonrespondents with similar attributes. The school weights are also raked to sampled-based control totals in order to maintain the background characteristics of the sample. This is another method used to reduce the potential for nonresponse bias in the estimates produced from the data.

Response rates will be computed for the TLF, the School Questionnaire, the Principal Questionnaire, and the Teacher Questionnaire. Data collected through any instrument with a response rate of less than 85 percent will be evaluated for nonresponse bias. In addition to comparing the characteristics of respondents and nonrespondents using data that are available from the sampling frames (for example, school type and school locale from the school frame), we will also compare NTPS 2020-21 estimates to estimates from previous rounds of NTPS and SASS. A methodology report covering NTPS 2020-21 will be developed and released, and will describe the methods and results of the nonresponse bias analysis.

B.4 Tests of Methods and Procedures

The SASS/NTPS series of studies has a long history of testing materials, methods, and procedures to improve the quality of its data. Section B.4.1 describes those tests that have most influenced the NTPS design, beginning with the 2014-15 NTPS Pilot Test and continuing through NTPS 2017-18. Section B.4.2 describes experiments proposed for NTPS 2020-21.

B.4.1 Tests Influencing the Design of NTPS 2020-21

2014-15 NTPS Pilot Test

Five experiments designed to optimize the design of the 2015-16 NTPS were conducted as part of the 2014-15 NTPS Pilot Test: 1) the Questionnaire Mode Experiment, 2) the TLF Email Experiment, 3) the Invitation Mode Experiment, 4) the Teacher Questionnaire Instruction Experiment, and 5) the Vendor Analysis. Each of these experiments is briefly described below, along with its results and implications for successor NTPS data collections.

1. ***Questionnaire Mode Experiment.*** This experiment was designed to determine whether paper questionnaires or Internet survey instruments (i.e., mail-only versus internet sequential modes) constituted the most effective mode of collecting the TLF, School Questionnaire, and Principal Questionnaire. For all three-survey instruments, the schools assigned to the paper mode had higher response rates than the schools assigned to the internet mode.

Some known issues with data collection could have impacted these response rates. First, the pilot test did not use survey coordinators, a method shown to boost response rates in SASS. Second, there were problems related to the contact materials for the internet treatment groups. As a result of this experiment, NTPS 2015-16 was primarily paper based; used improved contact materials and login procedures; and included an experimental sample of 1,000 schools, outside the main study, which were offered Internet survey at the onset of data collection and which followed standard production NTPS procedures, including the establishment of a survey coordinator.

2. ***Teacher Listing Form (TLF) Email Experiment.*** This experiment was designed to assess the feasibility of collecting teacher email addresses on the TLF and the quality of those collected. The pilot test design included a split-panel experiment, with half of sampled schools randomly assigned to receive a TLF that included a request for teachers' email addresses and the other half to receive a TLF that did not request email addresses. At the end of data collection, response rates were comparable between the schools that received the TLF with the email address field and the schools that received the TLF without the email address field. As a result of

this experiment and the Invitation Mode Experiment described below, NCES used the TLF with the email address field in NTPS 2015-16 and plans to continue to do so for NTPS 2017-18.

3. ***Invitation Mode Experiment.*** The purpose of this experiment was to identify which of three methods of inviting teachers to complete the Teacher Questionnaire yielded the best response rates. Schools were randomly assigned to the following invitation modes: 1) both email and mailed paper invitation letters to complete the internet instrument (treatment A), 2) a mailed paper invitation letter to complete the internet instrument only (treatment B), and 3) a mailed package that included a letter and paper questionnaire (treatment C). The results of the experiment indicated that a strategy using a combination of email and paper invitations (treatment A) is best for inviting teachers to complete the internet questionnaire. The response rate for treatment group A was comparable to that of treatment group C that received only mailed paper materials. As a result of this experiment, teachers sampled for NTPS 2015-16 for whom we had a valid email address were sent both email and paper invitations as the initial request to fill out the Teacher Questionnaire. Teachers without valid email addresses were sent their initial invitation as part of a mailed package that included a paper copy of the survey. For the 2017-18 NTPS, NCES plans to push for web response by both mailed and emailed correspondence, switching to a paper questionnaire at the third mailing.
4. ***Teacher Questionnaire Instruction Experiment.*** This experiment was designed to determine (1) whether including instructions in the NTPS questionnaire impacts response rates for questionnaire items and data quality, and (2) whether the position, format, and presence or absence of a preface in the instruction impacts response rates for questionnaire items. Production questions and instructions, which were the product of production cognitive interviewing, were selected from the 2014-15 NTPS. In addition, a second set questions and instructions were intentionally created to counter teachers' natural conceptions of terms. Both sets of questions were compared to a control group with no instructions. Utilizing a factorial experiment design, we three factors varied that were predicted to alter the effectiveness of instructions: their location, format, and the presence or absence of a preface. The NTPS questions with instructions, which were the result of production cognitive interviews, increased the length of the questionnaire with no measureable improvement in data quality compared to control questions with no instructions, whereas the experimental questions with instructions meant to counter teachers' natural conceptions of terms improved data quality by changing responses in the expected direction. Due to the lack of differences for NTPS production questions, no major changes were made to instruction position, format, or introduction in subsequent 2017-18 NTPS.
5. ***Vendor Analysis.*** The purpose of this experiment was to evaluate both the feasibility of collecting teacher lists from a vendor and the reliability of the purchased information to see whether it could be used to supplement or replace school-collected TLFs. NCES purchased teacher lists from a vendor for schools sampled for the 2014-15 NTPS pilot test. The vendor teacher lists were compared with information collected from the TLFs. The results suggested that the vendor list information was comprehensive and reliable at a relatively low cost. NCES used vendor lists to sample teachers from a subset of schools that did not respond to the TLF in NTPS 2015-16 and plans to use vendor lists for the 2017-18 NTPS.

NTPS 2015-16 Full-Scale Collection

1. ***Schools and Principals Internet Test.*** The 2015-16 NTPS included an Internet experiment for schools and principals, which was designed to test the efficacy of offering an internet response option as the initial mode of data collection, as done previously in the Questionnaire Mode Experiment included in the 2014-15 NTPS Pilot Study, described earlier.

Key differences exist between the 2014-15 and 2015-16 NTPS internet experiments, with the most notable being that the 2015-16 experiment included the use of a survey coordinator at the school, and improved respondent contact materials and mailout packaging. In the 2015-16 NTPS, an independent sample of 1,000 public schools was selected for this experiment, which invited schools and principals to complete the NTPS school-level questionnaires using the internet at the first and second contacts by mail. A clerical operation prior to data collection obtained email addresses for sampled principals assigned to the internet treatment. Principals were sent emails as an initial mode of invitation to complete the NTPS questionnaires as well as reminder emails; the timing of these emails was a few days following the mailings.

Paper questionnaires were offered at the third and final mailout. Data collection for the internet treatment concluded after the third mailing, so the schools in the experimental treatment did not receive a fourth mailing and were not included in the telephone follow-up or field follow-up operations. When comparing the response rates for all three survey instruments at the end of the reminder telephone operation – the most reasonable time to make the comparison – and removing the cases that would have qualified for the early field operation, the response rates for schools assigned to the internet treatment are five to six percentage points higher than those for the paper treatment. Therefore, the initial mailout will invite respondents to complete online questionnaires during the 2017-18 NTPS data collection for all questionnaire types. Paper questionnaires will be introduced during the third mailing. Principal email addresses (purchased from the vendor) and school-based survey coordinator email addresses (collected at the time the survey coordinator is established) will be utilized during data collection. Invitations to complete the principal and school questionnaires via the Internet response option will be sent to the principal and school-based survey coordinator by email in conjunction with the various mailings.

2. ***Contact Time Tailoring Experiment.*** This test was designed to determine the optimal contact time for teachers. During the telephone nonresponse follow-up operation, interviewers contacted nonresponding principals and teachers to remind them to complete their questionnaire. Teachers tend to be difficult to reach during the school day due to their teaching schedules. NCEs staff hypothesized that teachers may be easier to reach by phone in the late afternoon, when school had been dismissed. To test the accuracy of this theory, an experiment was embedded in the telephone nonresponse follow-up operation. A portion of the NRFU teacher workload received an experimental treatment, where they were intended to be contacted only in the afternoon between 2:00 p.m. and 5:00 p.m. (respondent time). The remainder of the NRFU teacher universe functioned as the control group. These teachers were intended to receive contacts throughout the school day, per typical telephone follow-up procedures. The research questions this test was designed to answer were as follows:
 - a. Are afternoons more productive for calling teachers?

- b. If not afternoons, are there more productive times than others for calling teachers?
- c. Do productive contact times for teachers hold globally, or do different types of schools have different productive call time frames?
- d. Can we use school-level frame information (e.g. urbanicity, school size, grade level) to help tailor call times in future rounds of data collection?
- e. If the calls are being made at “productive times,” are fewer call attempts required to successfully make contact with the teacher?
- f. If the calls are being made at “productive times,” are fewer call attempts and total contacts required to obtain a completed interview?

Operational challenges in conducting the call time experiment were encountered. Early in the telephone nonresponse follow-up operation, telephone interviewers reported that school staff members were complaining about receiving multiple calls to reach the sampled teachers. School staff members indicated that they would prefer to know the names of the teachers the interviewer needed to reach so that they could assist the interviewer in as few phone calls as possible. As a result, the results of the experiment could not be evaluated as intended. Instead of comparing the success of reaching the sampled teachers by their treatment group, staff compared the success rates of the actual call times. Call times were categorized as ‘early’ (before 2:00 p.m.) or ‘late’ (between 2:00 p.m. and 5:00 p.m.). There was not a noticeable difference in the success rates of contacting teachers by call time. Additional analyses on the data may be conducted to help inform future administrations of NTPS.

NTPS 2017-18 Full-Scale Collection

To address declining response rates among teachers in NTPS 2015-16, NCES tested the use of incentives to increase response in NTPS 2017-18. In addition, NTPS 2017-18 included a private school test that was designed to (a) provide accurate estimates for teachers and principals in private schools in the U.S. and (b) to examine the effects of strategies to improve response in this population.

Each of these experiments is briefly described below, along with its results and implications for successor NTPS data collections. Should any updates to this section become necessary for implications for NTPS 2020-21, they will be provided in the NTPS 2020-21 Main Study submission in winter 2019-20.

1. ***Testing the use of teacher incentives.*** The 2017-18 NTPS included an incentive experiment designed to examine the effectiveness of offering teachers a monetary incentive to boost overall teacher response. Teachers were incentivized during the first 12 waves of teacher sampling (“phase one incentive experiment”), then a combination of teachers and/or school coordinators or principals were incentivized during the remaining waves (“phase two incentive experiment”). During the first 12 waves of the teacher sampling, teachers were only sampled from returned TLFs. However, beginning in wave 13 for schools, teachers could be sampled from returned TLFs, vendor lists, or internet look-ups. This change in the teacher sampling procedures provided a natural breakpoint between the two phases of the experiment and allowed us to target the most challenging cases with an additional incentive for the school coordinator or principal.

The results of phase one of the incentive experiment indicated that the teacher incentive led to significant increases in the response rate for both public and private school teachers. As shown in table 10, below, there was roughly a 4% increase in response for both the public and private school teachers that received the incentive, compared to the teachers that did not receive the incentive.

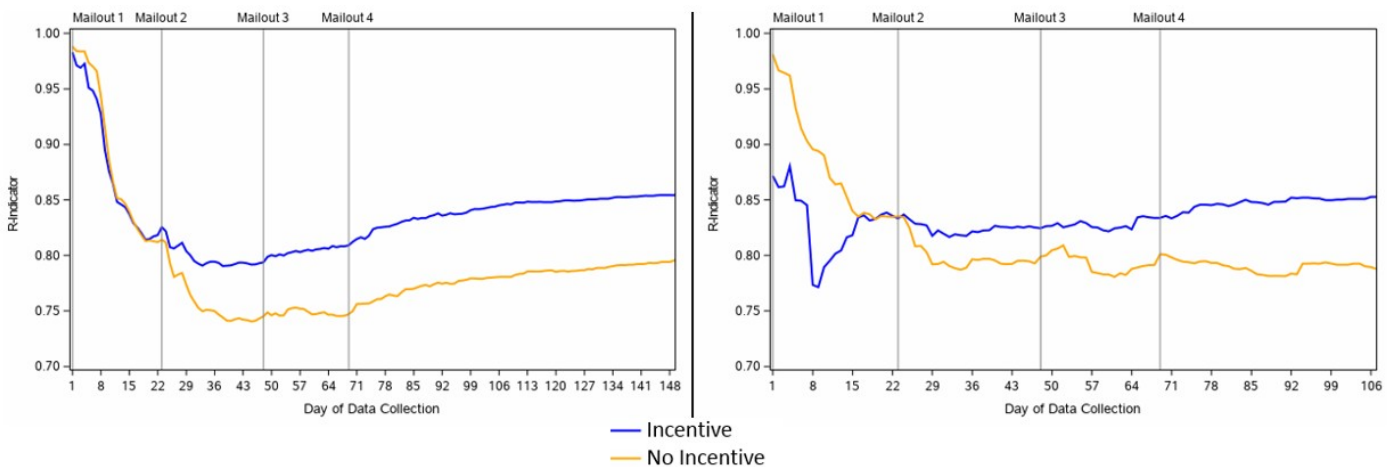
Table 10. Teacher response rates by incentive treatment and school type for the phase 1 incentive experiment: NTPS 2017-18

	Public Teacher	Private Teachers
Incentive	88.60%	87.50%
No Incentive	84.60% ¹	83.70% ¹

¹ denotes a statistically significant difference from the incentive group at the $\alpha = .10$ level

In addition, the average number of days to complete the questionnaire was significantly lower for public school teachers that received the incentive by 4.85 days. Finally, the incentive helped increase the overall sample balance for teachers in both public and private schools. Exhibit 2, below, depicts the full-sample R-indicator by day of data collection for public school teachers on the left and private school teachers on the right. As shown in the graphic, following the second mail-out, the group that received the incentive had a more balanced respondent population than the group that did not receive the incentive.

Exhibit 2. Full-sample R-indicator by day of data collection for public (left) and private (right) school teachers: NTPS 2017-18



The results of phase two of the incentive experiment indicated that the additive effect of the school coordinator incentive (in addition to the teacher incentive) was negligible for both public and private school teachers. As shown in the table 11 below, there were significant differences between the two groups that received the teacher incentive and the two groups that did not receive the teacher incentive. However, between the two groups that received the teacher incentive, the group that also received the school coordinator incentive did not have a significantly higher response rate.

Table 11. Teacher response rates by incentive treatment and school type for the phase 2 incentive experiment: NTPS 2017-18

	Public Teacher	Private Teacher
Teacher, SC Incentives	77.40%	
Teacher Incentive Only	76.71%	
SC Incentive Only	72.97% ^{1,2}	
No Incentives	73.73% ^{1,2}	

¹ denotes a statistically significant difference from the Teacher, SC Incentive group and the respective column's group with $\alpha = .10$ level

² denotes a statistically significant difference from the Teacher Incentive Only group and the respective column's group with $\alpha = .10$ level

³ denotes a statistically significant difference from the SC Incentive Only group and the respective column's group with $\alpha = .10$ level

In addition, the average number of days to complete the teacher questionnaire was significantly lower for the treatment group that received both incentives when compared to the treatment groups that did not receive a teacher incentive (with or without the school coordinator incentive) for both public and private school teachers. Table 12 shows the average days to respond comparisons between the treatment groups.

Table 12. Average number of days for teachers to complete their teacher questionnaire by school type and incentive treatment for the phase 2 incentive experiment: NTPS 2017-18

	Teacher, SC Incentives	Teacher Incentive Only	SC Incentive Only	No Incentive
Public Teacher	36.86	37.57		
Private Teacher	40.12	40.75		

¹ denotes a statistically significant difference from the Teacher, SC Incentive group and the value's respective column group using Cox proportional hazard modeling with $\alpha = .10$ level

² denotes a statistically significant difference from Teacher Incentive only group and the value's respective column group using Cox proportional hazard modeling with $\alpha = .10$ level

³ denotes a statistically significant difference from SC Incentive only group and the value's respective column group using Cox proportional hazard modeling with $\alpha = .10$ level

Given these results, teachers will be offered an incentive for the NTPS 2020-21 and school coordinators will not be offered a monetary incentive for the NTPS 2020-21.

- 2. Testing the use of incentives as part of a contingency plan.** NTPS 2017-18 experimented with offering an incentive to teachers if they belonged to a domain that was determined to be ‘at-risk’ of not meeting NCES reporting, or publishability, standards towards the end of data collection (by February 12, 2018). NCES monitored actual and expected response in each of the key domains on a weekly basis. The contingency plan was to be activated in the experimental group only if needed and, based on publishability reports, it was deemed needed and was activated. The control group was not eligible to receive the contingency incentive. While the plan was aimed at improving teacher response rates, because teachers within a school were likely to discuss the study, schools were selected based on meeting criteria of the domain at risk and all teachers within the school were subject to the same treatment (experimental or control). This approach was based on the assumption that if some teachers in the school received an incentive and others did not, it would negatively impact current and future response from that school. At the time the incentive was activated, some teachers at the school have already responded to NTPS – such teachers, if assigned to the contingency incentive treatment, were provided the incentive as a “thank you” for their participation. For all other teachers in the school, the same incentive was prepaid and not conditional on their response. Given that schools selected for the contingency plan incentive were based on the number of teachers in the at-risk domain, selection for this incentive was independent of the main NTPS incentive experiment. Consistent with the other NTPS 2017-18 procedures, the incentive amount varied between priority and non-priority schools. Teachers in selected non-priority schools received \$10 with their third mail-out or thank-you letter, and teachers in selected priority schools received \$20 with their third mail-out or thank-you letter.

The contingency plan results indicated that, overall, the contingency incentive significantly increased the response rate within the selected contingency incentive domains for public school teachers. For the cases that were open at the time of the 3rd mail-out and therefore received the contingency incentive, the response rate was 7% higher than for the group that did not receive the contingency incentive. Therefore, a contingency plan will also be included in the NTPS 2020-21 and will be executed as needed based on monitoring data collection status.

Table 13. Teacher response rates by treatment for the contingency plan incentive experiment: NTPS 2017-18

	Contingency Incentive	No Contingency Incentive
Response Rate of Cases Still Open at the 3 rd Mail-out	50.5%	43.2% ¹
Final Response Rate	74.8%	71.7% ¹

¹ denotes a statistically significant difference from the contingency incentive group at the $\alpha = .10$ level

3. **Private School Test.** In NTPS 2017-18, NCES conducted an embedded test with private schools both to determine whether sufficient response could be achieved to provide reliable estimates for private schools and to evaluate specific methods for improving response rates. The private schools selected for this test experienced data collection procedures that were generally similar to those used with the NTPS 2017-18 public school sample. Some procedures were adjusted to accommodate differences specific to this sector (e.g., religious holidays and schedules). Results indicate that the private school data collected during NTPS 2017-18 will yield publishable estimates; therefore, private schools will be included in the NTPS 2019-20 sample.

Within the private school test was a secondary test, where a tailored contact strategy was employed for a subsample of “priority schools”. A propensity score model was used to identify and segment priority schools. The highest priority schools for the collection are those with the lowest likelihood of response and the highest likelihood to contribute to bias. In order to assign schools into treatment groups, schools were matched into pairs with similar likelihood scores and then randomly assigned to groups (“priority” early contact schedule versus “non-priority” typical contact schedule). Because the priority school data collection plan was resource intensive and was not necessary for some schools (e.g., schools with a high likelihood of response), the tailored contact strategy was tested with 60 percent of the sample, based on the highest priority cases as identified by the propensity models. Once they were matched into pairs, half of the schools in the test group (30 percent of schools in the starting sample) were assigned to the treatment group (“priority”), and the other half of the schools (30 percent) were assigned to the comparison group (“non-priority”). The remaining 40 percent of the starting sample received the typical contact schedule for the non-priority schools.

Preliminary results from the tailored contact strategy test show that the tailored contact strategy (with data collection starting with in-person visits from Census Bureau FRs) was not effective for the private priority schools. In fact, the response rate for the priority schools treated as non-priority schools for the school and principal questionnaires exceeded those of the priority schools assigned to the priority school treatment.

4. **Coordinated special district operations.** NCES conducts several school-based studies within the NCES legislative mandate to report on the condition of education including, among others, NTPS, the SSOCS, and the National Assessment of Educational Progress (NAEP). A critical step for data collection is to obtain approval from public school districts that require it before a study can be conducted with students, teachers, and/or staff within their jurisdiction. The number of such special contact districts is steadily increasing. This poses a barrier to successful data collection, because many districts and schools have complex and lengthy approval processes, reject all outside research, or only review applications for outside research once a year. This has contributed to lower response rates for non-mandatory NCES surveys. NCES continues to examine how different program areas, both within NCES and in other federal agencies, seek approval from PreK-12 public districts and

schools in order to identify best practices and make recommendations for current and future operations, including the for NTPS 2020-21.

To reduce burden for the special contact districts and improve operational efficiency, NCES sought research approval simultaneously for NTPS 2017-18 and SSOCS 2018. Although NCES minimized overlap in the schools sampled for NTPS and SSOCS, most of the largest districts had at least one school selected for each of the surveys. All special contact districts with schools sampled for both NTPS and SSOCS received both research applications concurrently and were given the option to participate in NTPS only, SSOCS only, or both NTPS and SSOCS. The research request packets for the districts in both studies contained an additional letter introducing the studies and emphasizing that SSOCS and NTPS are working together to minimize the number of schools asked to participate in both studies. Some special districts found the dual application confusing, particularly districts with online application systems that do not allow for multiple applications to be linked. In addition, the samples for NTPS and SSOCS are drawn at different times, and coordinating applications delayed when a list of schools sampled for both studies could be shared with a district. As a result, future overlapping NTPS and SSOCS studies will likely send separate application packages to special districts for NTPS and SSOCS, though the staff that follow up with special districts about the status of these applications will be able to direct districts to the appropriate contact person if there are questions about other NCES studies. Because NTPS 2020-21 will have very little overlap with SSOCS 2019-20, there will be no coordination between the NTPS 2020-21 and SSOCS 2019-20 special contact district operations.

B.4.2 Tests Included in the Design of NTPS 2020-21

NCES is currently considering options for tests of methods, materials, and procedures to be conducted as part of NTPS 2020-21. NTPS 2020-21 is still in the planning stages, and so the plans described below are tentative. The final description of all data collection operations and tests, including those listed below and including final planned analyses and minimum detectable differences, will be provided in the NTPS 2020-21 Main Study data collection submission in winter 2019-20.

1. ***Further testing the use of teacher incentives.*** For NTPS 2020-21, both non-monetary and monetary incentives are being considered as a tool to increase response rates. Due to the favorable results from the use of teacher incentives for the NTPS 2017-18, the NTPS 2019-20 will include the use of incentives. Two types of incentives will be offered in an experimental manner – a prepaid cash monetary incentive and a non-monetary incentive. Teachers in the experimental treatment will receive a canvas (or similar fabric) tote bag at the first contact by mail. The tote bag will be NTPS or education-branded and may include select national-level data points from previous cycles of the survey. The treatment will be further separated into two groups – one where each of the teachers and the survey coordinator receive a tote bag, and the other where only each of the teachers receives a tote bag. These treatments will be evaluated against one another and the control group, which will receive a prepaid cash monetary incentive, as was implemented successfully in NTPS 2017-18. The final details and tote bag design will be included in the NTPS 2020-21 Main Study data collection submission in winter 2019-20.

To ensure a similar distribution of schools for each experimental group, the school sample will be sorted by an indicator for whether or not the school is covered on the vendor list and other selected school characteristics. The school characteristics will be selected for having significant influence on response based on past cycles of NTPS and on a model calculated to predict the likelihood of a school returning the TLF. For example, one of the school characteristics that may have a significant influence on

response is the priority/non-priority school status (i.e., schools with higher potential to impact weighting and lower propensity to respond that are subject to a slightly different set of collection operations), which will be taken into account by using it as a sort variable in which the priority/non-priority status will be a stratification variable in the model.

The teacher incentive treatment for each sampled school will be assigned at the time of school sampling, prior to the start of data collection. As such, the random assignment should result in a similar TLF response rate across the treatment groups. All teachers within the same school will receive the same incentive treatment; there will not be “mixed schools” where some teachers receive the prepaid cash monetary incentive while others receive the non-monetary tote bag incentive. Table 10 shows the experimental groups and approximate expected sample sizes.

Table 10. Experimental groups and approximate expected sample sizes

Experimental Group	Initial School Sample Sizes	Initial Teacher Sample Sizes ³
Monetary Incentive for teachers (Control)	5,300 Public Schools	23,500 Public School Teachers
	1,500 Private Schools	3,400 Private School Teachers
Non-monetary Incentive – for teachers and survey coordinators	2,650 Public Schools	11,750 Public School Teachers
	1,500 Private Schools	1,700 Private School Teachers
Non-monetary Incentive – for teachers only	2,650 Public Schools	11,750 Public School Teachers
	1,500 Private Schools	1,700 Private School Teachers

Following data collection, analyses will be conducted at the treatment level (incentive group vs. control). The analyses examined will include:

- Response rate;
- R-Indicators,
- Average number of contacts;
- Days to respond;
- Data collection costs.

The response rates will be calculated directly and compared using significance tests for differences. To account for confounding variables, a model-based approach will also be calculated to determine what effect the incentive had on a case’s likelihood to respond, given that case’s unique characteristics.

R-indicators will be used to determine the overall balance of the respondent population, as well as within each experimental group. R-indicators will be calculated for the full sample, as well as variable-level and category-level partial R-indicators to determine

³ The teacher samples sizes will not be exactly equal across experimental groups, as the number of teachers sampled from each school is not equal. However, each group should contain roughly the same number of teachers.

which characteristics specifically are contributing to imbalance within the respondent population.

The average number of contacts and average days to respond across the experimental groups will be used as a proxy for timeliness of response. A reduction in the average number of contacts could be used to justify the use of one type of incentive over another. If cases within the experimental group using non-monetary incentives respond in a more timely fashion, which could further help increase timeliness of data releases, the use of non-monetary incentives would improve the value of the data collected.

Using data collection costs associated with each mailout, the value of the incentive itself, and estimates for interviewer costs, an average cost-per-case can be determined within each experimental group. A reduction in cost-per-case could justify the use of incentives to reduce the overall survey cost. While using incentives leads to more initial costs, if cases respond in a fewer number of contacts – specifically more costly contacts such as personal visits – this could lead to a significant reduction in overall cost at the end of data collection.

2. **Testing non-monetary incentives at the school level.** The NTPS 2020-21 may include an experiment for a small number of public schools designed to examine the effectiveness of offering a non-monetary incentive to schools to boost overall NTPS response within the school. Schools assigned to the experimental treatment will receive a non-monetary incentive with the initial mailout package. This package will be addressed to the survey coordinator at the school address. If a survey coordinator was not established during the screener interview, the package will be addressed to the principal at the school address. The package will contain the non-monetary incentive, along with a letter to the survey coordinator or principal, and three individually sealed envelopes that contain login information for completing the TLF, Principal Questionnaire, and School Questionnaire. The critical features of the non-monetary incentive item are that the item is: (1) sharable amongst school staff, (2) awareness raising about the survey within the school, leading to conversations about the NTPS among school staff, and (3) customizable, in that the item can be NTPS or education-branded and possibly include select national-level data points from previous cycles of the survey.

The details of the non-monetary incentive are still being worked out and are pending the acquisition process and the receipt of prototypes. However, the current plan is to send large, sealed metal tins of popcorn to schools in the non-monetary incentive treatment group. The tins will be NTPS-branded and/or include other education-related information. The print on the tins may also include a sample of national-level data from past NTPS cycles.

The school incentive treatment for each sampled school will be assigned at the time of school sampling, prior to the start of data collection. As such, the random assignment should result in a similar TLF response rate across the treatment groups. Following data collection, the non-monetary incentive treatment will be evaluated against the control group, which will not receive an incentive at the school level.

The analyses may be examined but not limited to:

- Response rate;
- Average number of contacts;
- Days to respond;
- Data collection costs.

The response rates will be calculated directly and compared using significance tests for differences. To account for confounding variables, a model-based approach will also be calculated to determine what effect the incentive had on a case's likelihood to respond, given that case's unique characteristics.

The average number of contacts and average days to respond across the experimental groups

will be used as a proxy for timeliness of response. A reduction in the average number of contacts could be used to justify the use of an incentive. If cases within the experimental group using non-monetary incentives respond in a more timely fashion, which could further help increase timeliness of data releases, the use of non-monetary incentives would improve the value of the data collected.

Using data collection costs associated with each mailout, the value of the incentive itself, and estimates for interviewer costs, an average cost-per-case can be determined within each experimental group. A reduction in cost-per-case could justify the use of incentives to reduce the overall survey cost. While using incentives leads to more initial costs, if cases respond in a fewer number of contacts – specifically more costly contacts such as personal visits – this could lead to a reduction in overall cost at the end of data collection.

3. **Testing new mailed package contents and packaging.** In an effort to both increase response rates and lower mailing costs, NTPS 2020-21 will explore whether new types of mailed materials will yield higher response rates.

NTPS 2020-21 will test two versions of letters to principals and school coordinators to determine whether modifying contact materials to emphasize the values of the study and the benefits of participating can increase response rates compared to letters similar to those used in past NTPS administrations.

In addition, a randomized experiment in NTPS 2020-21 will compare the effects of including a glossy, two-sided Data Point report that highlights key results from past NTPS administration in the Advanced Letters to schools where the principal is invited to complete the Screener using the Screener instrument.

In previous cycles of NTPS and its predecessor SASS, the endorsing agencies' names were printed on the cover of the paper questionnaires. Feedback from schools, school administrators, and teachers suggests that these are often overlooked and that the logo or acronym of endorsing agencies is more salient to them. Therefore, a separate endorsement insert will be included in selected school packages. The insert will be in full color and will be on glossy paper, intended to stand out to the respondent. This will be done in an experimental manner, with schools randomly assigned to treatment groups.

Finally, in NTPS 2020-21, a randomized experiment will compare the effects of using business envelopes versus pressure-seal mailing materials.

The experimental design for testing the new mailed package contents is in the planning stages.

4. **Tailored Contact Materials.** Respondents sampled for NTPS receive letters and e-mails that emphasize the importance of their participation in the survey, but this information has not emphasized the ways in which NTPS data inform researchers and policymakers. In NTPS 2017-18, the statement “Public school teachers provided an average of 27 hours of instruction to students during a typical week in the 2015-16 school year. What about you?” was added to the outside of Third Reminder Teacher Letter envelopes for the final wave of sampled public school teachers.

Focus groups with teachers conducted in 2018 (OMB #1850-0803 v.235 & 237) explored what statistics and other general revised wording is most salient to different types of respondents, and similar statements will be placed on materials sent to respondents, such as on the outside of envelopes or within enclosed letters, to determine whether targeted, persuasive messaging can increase response rates. Teachers seemed to take particular note of statistics related to finances (e.g., salary and out of pocket spending on supplies) and where comparisons could be made either between statistics (e.g., the amount of time spent providing instruction and worked overall) or types of teachers (e.g., between teachers nationally and teachers in their own state).

The experimental design for testing the tailored contact materials is in the planning stages.

5. **Testing various question layouts on the internet instruments.** The NTPS 2020-21 school and teacher questionnaires will include several different versions of items or groups of related items, with the layout of the items varying across the treatment groups. The goal of the experiment is to compare the response distributions of the different versions of the item and ultimately identify the best question layout for future cycles of NTPS.

Item 2-4 on the public and private school questionnaires asks the respondent how easy or difficult it was to fill vacancies for 12 positions in their school. The response options include the following: easy, somewhat difficult, very difficult, could not fill vacancy, no vacancy this school year, and position not offered in the school. The order of the responses presented to the respondent may impact the actual responses to each question. In addition, the presence of a visual gap within the grid between (a) responses indicating the level of difficulty of filling vacancies and (b) responses that indicate the question is not applicable may also impact the actual responses to each question. For example, when “easy” is the first response category offered, as opposed to “the position is not offered in this school” or “no vacancy in this field this school year,” respondents who are not fully-engaged may mistakenly select easy without reading all of the other options (e.g., it was easy to fill a vacancy since there was no vacancy). In addition, a filter question has been included in past administrations, first asking respondents whether their school had any teaching vacancies in any field. While removal of this filter question will allow researchers to determine whether a school did not have a vacancy in a given field because the position was not offered or because there was simply no vacancy in any field, an important distinction for estimating the percentage of schools with vacancies in a given field, it is possible that fewer vacancies would be reported without the presence of a filter question, that is, respondents may mistakenly omit vacancies when a list of teaching fields is not seen.

The experimental design for testing the internet question layout is in the planning stages.

B.4.3 Qualitative Testing in Preparation for NTPS 2020-21

Based on paradata collected during the 2017-18 NTPS and public comments received for NTPS 2017-18, cognitive testing was conducted in 2017 and 2018 (OMB #1850-0803 v.218) to test new and modified NTPS 2020-21 content, including new questions designed to ask public school principals and teachers about their sexual orientation and gender identity.

During cognitive testing, respondents generally did not have difficulty understanding or answering the tested questions on sexual orientation and gender identity. While item nonresponse was minimal and most participants provided responses, some speculated that others may not feel comfortable answering truthfully. In order to test these assumptions and evaluate what, if any, impact these questions would have on overall response rate, NCES is planning to conduct a small field test alongside the NTPS 2020-21 main study data collection to evaluate item nonresponse, unit nonresponse, and survey breakoffs for the newly developed items. More details about the field test will be provided in the NTPS 2020-21 Main Study submission in winter 2019-20. In addition, further developmental work is being designed to test various NTPS 2020-21 questionnaire items and to test the online portal through which schools will be asked to submit the NTPS 2020-21 Teacher Listing Form. Details of these developmental studies will be provided under the generic NCES clearance agreement (OMB #1850-0803), which allows NCES to conduct procedures to develop, test, and improve its data collection methodologies and materials (e.g., cognitive interviews, focus groups, feasibility testing, etc.).

In addition to the cognitive testing, focus groups were conducted in 2018 to test NTPS 2020-21 recruitment materials (OMB #1850-0803 v.235 & 237). More testing in preparation for NTPS 2020-21 is being planned for 2019. Details will be provided through clearance request submitted either under the generic National Center for Education Statistics (NCES) clearance agreement (OMB# 1850-0803), which provides for NCES to conduct various procedures (such as pilot tests, cognitive interviews, and usability studies) to test new methodologies, question types, or delivery methods to improve survey and assessment instruments and procedures, and/or in the NTPS 2020-21 Main Study clearance request in winter 2019-20.

B.5 Individuals Responsible for Study Design and Performance

The following individuals are responsible for the NTPS 2020-21 study design, data collection, and analysis: Maura Spiegelman, Deanne Swan, and Andy Zukerberg at NCES; Shawna Cox, Walter Holmes, Mary Davis, and Aaron Gilary at U.S. Census Bureau; and David Marker, Lou Rizzo, and Minsun Riddles at Westat.