

Institute of Educational Sciences
National Center for Education Statistics

CONNECTING THE DOTS:
INTEGRATED SAMPLING APPROACH FOR MULTIPLE SURVEYS

I: SAMPLING DESIGNS & II: IMPLEMENTATION

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EXECUTIVE SUMMARY

The title “*Connecting the Dots*” was chosen to describe the potential for improving the available information on US education by coordinating the efforts across surveys. The fourfold objectives are simultaneously to streamline the recruitment process at state/district/local levels, to reduce burden especially at district/local levels, to diminish non-response, and to leverage data from multiple data sources both at NCES and in other federal data collections.

Conceptually, integrating the sampling approach across multiple surveys would enable presentation annually of a single, compiled package of NCES survey proposals to the decision-maker at each level for approval of surveys individually. This approach would separate the recruitment process, removing it from individual survey contracts which currently handle recruitment independently for each survey.

Two expert panels considered the essential components to a strategy for restructuring multiple surveys into a coordinated process. They then weighed the requirements and the merits of going forward. *Part I* engaged statistical experts who considered the technical issues and feasibility of creating integrated or coordinated sampling plans. The technical solution would have simultaneously to meet the statistical requirements for each individual survey, to avoid inadvertent sample duplications and to enable data leveraging across surveys to improve estimation. *Part II* engaged recruiters (contractors), school district administrators (decision-makers) and social scientists to explore implementation and the impacts of such integrated sample designs on the recruitment process from each of their varied perspectives.

Both *Part I* and *Part II* panels found a coordinated approach to be highly desirable and feasible. They also determined that the work to accomplish this transition would be substantial and a successful strategy is likely to be complicated. Agreement was unanimous that the merits would be well worth the required work and investment.

Part I focused on the set of NCES surveys proposed for a single academic year and the strategy for a coordinated sampling plan. While a naïve approach would not scale beyond two (at most three) surveys, two distinct more computationally intensive strategies (or a combination) are scalable. For these strategies to be efficient, two resources are needed: a history of participation data base for schools, and compatibility with NAEP stratification and sampling design.

Part II placed the NCES surveys into the context of all proposed surveys submitted at each level: state/district/school. The picture differs greatly across states and districts with respect to demand, to

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resources, even to the definitions of burden and benefits, and to the valuation of surveys (in the 100s for large districts) competing for school time.

A single package of proposals to review would identify the set of surveys as national with a single parent agency. Dealing with a single, continuing contact would improve dialogue while building a relationship of trust. The review process would be streamlined by eliminating repeated review and redundant discussion of critical issues (e.g., legal security and privacy documents) and by enabling recruitment materials to be passed on to the next level as a single process. The development of an annual calendar (even anticipating a future year) would benefit school calendar planning; it would also facilitate widely disseminated advance messaging. Since both burden and benefits affect response/non-response, understanding these is ultimately critical to overall success; both data and metrics are needed.

The complete findings and recommendations from Part I and Part II are combined below because the overlap was extensive and nowhere were these in conflict.

Part I and Part II Panels' Principal Findings

Coordination of NCES surveys and assessments is unequivocally desirable and feasible.

Accomplishing this will require extensive changes in several aspects and significant investment of effort and technical expertise to achieve integration across surveys moving toward standardization of critical survey components.

Building trust and open dialogues with gatekeepers at all levels is an immediate step and a continuing objective.

Initial steps can be taken before a comprehensive plan is complete.

Careful launch of these changes requires energetic communication and advance preparation of the education community, also coordination with OMB and current and potential survey contractors.

Specific Recommendations

NCES Supporting Infrastructure

- Expand the sampling frame, both open access CCD and a restricted access expansion to CCD.
 - Assign a permanent school ID for use in sampling and analysis of sampling, participation, and burden histories.
 - Create a History of Participation data base for districts and schools; include recruitment attempts, results, reasons for refusals or other non-response, and metrics for burden.
 - Moving forward, develop a research base for studying patterns of refusal and for estimating the impact of non-response, using external sources to validate.
- Unify the CCD updating process to be continuous, but with date-stamped versions each year, used by all surveys for sampling, in post-stratification adjustment and in data sharing/integration.

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- Standardize a core of key content across surveys and, when possible, anchor these to NAEP or other external source.
 - Include in this core content the data needed to form small area estimates for the variety of specifications that meet schools' and NCES's needs.
 - Standardize stratum definitions (including cut-offs as well as variables) for the primary variables; at a minimum incorporate NAEP stratum definitions and stratum boundaries into records for all surveys to enable data sharing/integration across surveys and validation of survey estimates.

Calendar

- Set up a cycle for survey planning through sampling and recruitment that will work for schools, districts and states as well as NCES and contractors.
- Set up an annual combined calendar that includes NAEP and international studies for planning purposes and burden evaluation. Preferably expand to include a contemplated calendar for the following year or two years.

Trust, Dialogue and Partnership

- Build trust and open dialogues with gatekeepers at all levels.
- Build trust and understanding of local issues through a continuing relationship with a single (state/district) NCES recruiter.
- Differentiate among small/medium/large districts/states because of differing resources, needs, magnitudes of disruption by surveys, and frequencies of repeated sampling.
- Work to define Benefits in district/school/respondent terms, to identify a collection of potential benefits for different circumstances.
- Work to define Burden in district/school/respondent terms.
 - Account for administrative personnel time and tasks (pre- to post-survey), also days present in school as well as {minutes x number of students}.

Messaging

- Brand uniformly and visibly with US Department of Education (primary); NCES/IES (secondary) survey contractor (tertiary).
- Disseminate targeted advance messaging widely to set expectations for surveys scheduled for the next one or more academic years.
- Use trusted voices as advocates at every level; provide suitable materials for advance messaging and for recruitment discussions (e.g., District support to prepare local recruiting).
- Tailor recruitment materials to recipient; stress impact – past and anticipated for future. Omnibus information for districts; relevant survey information for school.

Streamlined Recruiting

- Use a coordinated sampling approach to reduce burden on individual schools, on school districts, on administrators, coordinators, recruiters and NCES and contractors. The coordinated request would still allow selective approval/rejection of individual studies for implementation in each state/district/school.
- Streamline the recruitment process by reducing, if not entirely eliminating, duplicative explanations, justifications, requests and negotiations.
- Establish a single, long-term contact (recruiter) in order to improve the quality and efficiency of interactions while reducing the number of meetings between recruiter and education office or administrator and overall decreasing the process time at state/district/school levels.

Sampling Design

- Unify the process for drawing the samples for all surveys & assessments for each academic year (possibly expanding to two years – one year with NAEP and one interim year).
- Support the technical development of one or more approaches to coordinated sampling, with theoretical, simulated or data-based reconstructions to evaluate their relative efficacies and efficiencies, and their scalability.
- Manage overlap proactively to leverage across surveys, with overlap with NAEP constituting a special case.
- Use stratum definitions that are either standardized across surveys or retain comprehensive information on stratum variables, sufficient to conform to a common definition, when possible, anchored to NAEP or other external source.
- Redirect focus on response rates to quality of information: representativeness, precision and bias of estimates.
 - Redefine Data Quality – expand beyond accuracy and response rate, to include timeliness and usefulness for information integration.
- Moving forward, support research to identify patterns and calculate propensity for non-response (as input to designs for future sample) and to estimate the impact of non-response, using external sources (including NAEP) to validate non-response bias assessments and adjustments.