

REPORT

Impact Evaluation of Departmentalized Instruction in Elementary Schools

Part A: Supporting Statement for Paperwork Reduction Act Submission

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PART A. SUPPORTING STATEMENT FOR PAPERWORK REDUCTION ACT SUBMISSION

This package requests clearance for data collection activities to support an evaluation of departmentalized instruction in elementary schools. The Institute of Education Sciences (IES), National Center for Education Evaluation and Regional Assistance, U.S. Department of Education (ED) has contracted with Mathematica Policy Research, Inc. (Mathematica) and its partners (Public Impact; Clowder Consulting, LLC; Social Policy Research Associates; and IRIS Connect) to conduct this evaluation.

Departmentalized instruction, where each teacher specializes in teaching one subject to multiple classes of students instead of teaching all subjects to a single class of students (self-contained instruction), has recently become more popular as an improvement strategy in elementary schools. However, virtually no evidence exists on its effectiveness relative to the more traditional self-contained approach to instruction. This evaluation will help to fill the gap by examining whether departmentalizing fourth and fifth grade teachers improves teacher and student outcomes. The evaluation will focus on math and reading, with an emphasis on low-performing schools that serve a high percentage of disadvantaged students.

The evaluation will include implementation and impact analyses. The implementation analysis will describe schools' approaches to departmentalization and benefits and challenges encountered. The analysis will be based on information from schools' study agreement forms, meetings to design each school's approach to departmentalization; monitoring and support calls with schools; principal interviews; and teacher surveys. The impact analysis will draw on data from teacher surveys, videos of classroom instruction, principal interviews, and district administrative records to estimate the impact of departmentalized instruction on various outcomes. These outcomes include the quality of instruction and student-teacher relationships, teacher satisfaction and retention, and student achievement and behavior.

This package provides a detailed discussion of the procedures for these data collection activities and copies of the forms and instruments.

Justification

A1. Circumstances necessitating the collection of information

a. Policy context and statement of need

This evaluation is authorized by Title VIII Section 8601 of the Elementary and Secondary Education Act (ESEA) as amended most recently in 2015 by the Every Student Succeeds Act (ESSA). ESSA gives states considerable flexibility in designing systems to hold their schools accountable for improving student achievement. This flexibility extends to the types of strategies that states encourage or require their low-performing schools to adopt. However, many strategies in use have little to no evidence of effectiveness. More research is needed to help states identify strategies that are likely to help their low-performing schools improve.

By the upper elementary grades, low-income students' achievement lags several years behind that of higher-income students (Duncan and Magnuson 2011). One potential improvement strategy is to departmentalize instruction for upper elementary grade students, an approach in which teachers specialize in teaching specific subjects. This strategy, which secondary schools already use almost universally, holds promise for several reasons. Many teachers are, to some degree, more effective at teaching particular subjects (Condie et al. 2014; Fox 2016; Goldhaber et al. 2013). Assigning teachers to those subjects could raise student achievement. It also allows teachers to concentrate planning on fewer subjects, which may lead to more thoughtful lessons and deeper instructional or content knowledge in those subjects (Chan and Jarman 2004). However, some experts worry that departmentalization could harm struggling students, particularly low-income students, by compromising student-teacher relationships (McPartland and Braddock 1993). In particular, teaching more students may make teachers less aware of each student's needs; having more teachers may make students feel less connected to each teacher. These factors could decrease student achievement, offsetting any gains from being taught by teachers who are more effective in the subjects they teach.

Despite concerns about departmentalization in elementary grades, elementary schools are increasingly adopting it. The percentage of elementary teachers in departmentalized settings more than doubled over a recent 12-year period, from 6 percent in 1999–2000 to 15 percent in 2011–2012 (U.S. Department of Education [ED] 2009; Goldring et al. 2013).

Among elementary grades, the upper elementary grades may be the grades at which departmentalization holds the greatest promise. Instruction in those grades could require more content knowledge than in the lower grades, so there could be a greater benefit from teachers specializing in particular subjects. Data on teachers' effectiveness, particularly measures based on student scores from state assessments, are also more prevalent in the upper elementary grades, providing more information with which principals can assign teachers to the subjects they teach best. In addition, given concerns about whether departmentalization is developmentally appropriate for young students (Chang et al. 2008), departmentalizing the upper elementary grades may generate fewer concerns than doing so in the lower grades.

Given the increased use of departmentalization and numerous ways it might affect students, there is an urgent need for more evidence on its effects. The only random assignment study of departmentalization (Fryer 2016) found that it reduced upper elementary students' achievement after one year but had no effect over two years. The study was limited to one district whose

schools departmentalized with little to no implementation support. A few nonexperimental studies found associations between departmentalization and achievement ranging from positive to negative (McGrath and Rust 2002; Taylor-Buckner 2014). However, these findings could reflect unmeasured differences between the students or teachers in departmentalized and self-contained classrooms. In nonexperimental studies that examined nonacademic outcomes, students in departmentalized settings reported worse or similar feelings toward their classroom compared with students in self-contained classrooms (Chang et al. 2008; Parker 2009).

Overall, the educational community lacks large-scale, conclusive evidence on whether departmentalization helps or harms elementary students. This study will address the gap by providing rigorous evidence on the effectiveness of departmentalized instruction on teacher and student outcomes.

b. Treatment

This study will measure the impact of switching from self-contained to departmentalized instruction in upper elementary grades, specifically 4th and 5th grades. To help treatment schools transition to departmentalized instruction, the study team will provide implementation support. This support will include two design meetings before the start of the 2018–2019 school year to help schools determine the most effective structure for departmentalization and provide principals with advice on how to assign teachers to subjects. It will also include support calls to treatment schools while they are implementing departmentalization during the 2018–2019 and 2019–2020 school years to help navigate any challenges that may arise.

c. Study design and research questions

This study will use a random assignment design to estimate the impact of departmentalized instruction in elementary schools on teacher and student outcomes. The study will recruit approximately 200 schools from 12 districts for the study.¹ The study team will randomly assign schools to one of two groups – a treatment group that departmentalizes instruction in 4th and 5th grades for two years (2018–2019 and 2019–2020 school years) and a control group that continues using self-contained classrooms. In the treatment schools, principals will determine teachers’ assignments to subjects with guidance and support from the study team.

We will estimate the impact of departmentalized instruction in two different types of districts—those with teacher effectiveness measures based on student achievement growth and those without these measures. Impacts of departmentalized instruction could vary across these two sets of districts. In districts with these scores, principals can use the scores to determine teachers’ relative effectiveness in reading and math to assign teachers to the subjects they teach best. However, 63 percent of districts nationwide do not have teacher effectiveness measures based on student achievement growth (Troppe et al. 2017). To examine whether impacts differ depending on the availability of these data, we will aim to draw roughly half the school sample from districts with teacher effectiveness data and half from districts without these data. This study design will allow us to (1) estimate the overall impacts of departmentalized instruction across a range of districts and (2) estimate the impact of departmentalized instruction in districts

¹ Appendix G contains a copy of the letter that will be used to inform and recruit school districts.

with and without teacher effectiveness scores. It will also include implementation analyses that will provide context for interpreting impact results and shed light on the mechanisms through which departmentalized instruction may affect teacher and student outcomes.

The research questions for this study are:

1. What is the impact of departmentalization in grades 4 and 5 on student outcomes, such as achievement in math and reading, attendance, and disciplinary incidents?
2. What is the impact of departmentalization in grades 4 and 5 on teacher outcomes, such as instructional quality, teachers' relationships with students and parents, job satisfaction, confidence in teaching abilities, and retention?
3. Do the impacts of departmentalization differ based on whether principals have access to teacher effectiveness scores when assigning teachers to subjects?
4. How do schools structure departmentalization, including number of subjects and classes per teacher, assignment of teachers to subjects, and time allocated to instruction and planning?
5. How do principals' actual assignments of teachers to subjects compare with assignments based solely on baseline teacher effectiveness scores?
6. What challenges and benefits do principals and teachers perceive in switching to departmentalization?

d. Data collection

This study includes multiple data collection efforts. Data for the impact analyses will be collected from districts, schools, principals, and teachers. The study team will also collect data to describe implementation fidelity. Since we are video-recording classrooms, we will obtain permission from parents to include their child in video recordings. All of these data are described below and summarized in Table A.1.

Table A.1. Data collection

| Instrument/Activity | Data need | Respondent | Mode | Schedule |
|---|--|---|--|---|
| Principals/schools | | | | |
| School agreement form | Baseline data on the number of 4th and 5th grade classrooms and types of teacher performance data | Principals in study schools | Paper | Spring 2018 |
| Departmentalization design meeting form | Structure of departmentalization (e.g. number of teachers, subjects and sections taught by each); how teachers are assigned to subjects; schedule and planning time | Study team completes for treatment schools | Paper | Spring/summer 2018 at conclusion of design meetings |
| Monitoring call forms | Teacher grade and subject assignments (all schools); Challenges related to departmentalized instruction (treatment schools) | Principals in study schools | Electronic | Fall and spring during 2018–2019 and 2019–2020 school years |
| Principal interview protocol | Successes and challenges related to instructional structure; parent communication; disciplinary incidents (all schools); challenges and benefits of departmentalization; perceptions of approach to assigning teachers to subjects (treatment schools) | Principals in study schools | Electronic | Spring 2019 |
| Teachers | | | | |
| Class schedules | Class schedules for math, reading, or self-contained 4th grade classes in schools selected for video-recording | Teacher | Paper or electronic list of each subject/class taught by the teacher by day of the week and time | Spring 2019 |
| Student rosters | List of students in 4th grade classes selected for classroom video-recordings used to prepare parent permission packets and track returned permission forms | Teacher | Paper or electronic list of students enrolled in selected teachers' classrooms | Spring 2019 |
| Videos of 4th grade teachers' classroom instruction | Quality of instruction in math and reading; quality of student-teacher interactions | Study team video records one-half of 4th grade classrooms | Two videos of classroom instruction will be conducted and scored by the study team for each 4th grade teacher's selected class | Spring 2019 |
| Teacher survey | Time devoted to instruction, planning, and professional development; teachers' awareness of students' learning styles; satisfaction and confidence in teaching; school instructional structure; opportunities to coordinate with other teachers; successes and challenges during school year | All 4th grade teachers | Web-based survey | Spring 2019 |
| Districts | | | | |

| Instrument/Activity | Data need | Respondent | Mode | Schedule |
|---|---|--------------------------------|---|--|
| District administrative records on teacher effectiveness from the 2016–2017 school year (in districts with teacher effectiveness scores) | Baseline teacher effectiveness scores and teacher experience | Districts | Electronic records for all 4th through 8th grade teachers in the district who taught math or reading in the 2016–2017 school year | Spring 2018 through fall 2018 |
| District administrative records on teacher effectiveness from the 2016–2017 school year (in districts without teacher effectiveness scores) | Data needed to estimate baseline teacher effectiveness (students' current and prior-year achievement in reading and math, student characteristics and teacher experience) | Districts | Electronic records for all 4th through 8th grade students in the district in spring 2017 (linked to their math and reading teachers) | Spring 2018 through fall 2018 |
| District administrative student and teacher records from the 2017–2018 and 2018–2019 school years (in all study districts) | Student achievement in reading and math, student behavior (attendance, disciplinary incidents), student characteristics (such as gender, age, special education status, English learner status) Teachers' school assignments and characteristics (demographic information, educational attainment, years of teaching experience) | Districts | Electronic records for all 2nd–4th graders enrolled in study schools in spring 2018 Electronic records for teachers who ever taught 4th or 5th grade in a study school during the 2017–2018 or 2018–2019 school year | Summer/fall 2019 |
| District administrative student and teacher records from the 2019–2020 school year (in all study districts) | Student achievement in reading and math, student behavior (attendance, disciplinary incidents), student characteristics (such as gender, age, special education status, English learner status) Teachers' school assignments and characteristics (demographic information, educational attainment, years of teaching experience) | Districts | Electronic records for all 2nd–4th graders enrolled in study schools in spring 2018 Electronic records for teachers who ever taught 4th or 5th grade in a study school during the 2017–2018, 2018–2019, or 2019–2020 school year | Summer/fall 2020 |
| Parents and students | | | | |
| Parent permission forms | Active and passive permission forms (depending on district requirements and approved by IRB) for parent or guardian to document consent for student to be included in videos of classroom instruction | Parent or guardian | Paper permission form indicating consent or non-consent for students to be included in videos | Fall/winter 2018-2019 school year (distributed and collected by study team and teachers) |
| Student assent form | Student assent to be included in classroom videos, if necessary | 4th grade students in a video- | Paper | Spring 2019 |

| Instrument/Activity | Data need | Respondent | Mode | Schedule |
|---------------------|-----------|-----------------------|------|----------|
| | | recorded classroom | | |

School agreement form. We will collect school agreement forms from all principals of study schools in spring 2018 (Appendix F). The form will explain the study requirements and require principals to sign the form to indicate they understand and agree to adhere to those requirements. In addition, the form will include questions about the number of 4th and 5th grade classrooms in the school and the types of teacher performance data available to principals. This information will help Public Impact prepare to provide treatment schools with technical assistance and will also be used to describe the study context.

Departmentalization design meeting form. Study staff will meet with principals of treatment schools in the spring/summer 2018 to support treatment schools' transition to departmentalized instruction. At the conclusion of these design meetings, the study team will complete forms documenting how each school will implement departmentalized instruction. For example, these forms will describe the structure of departmentalization (including the number of teaching positions and how subjects will be split across positions) and the daily schedule (including the number of transitions for students, amount of individual and group planning time, and plans for structuring subject- and grade-level planning meetings). The forms will also indicate each teacher's teaching assignment and the factors principals considered when making assignments (such as the teachers' performance in math and reading, principals' observations of teachers' instruction, and teachers' educational background). This information is necessary for Public Impact to provide treatment schools with technical assistance and will not impose an additional data collection burden on principals.

Monitoring call forms. The study team will speak with the study schools by phone during the fall and spring of both implementation years (2018–2019 and 2019–2020 school years). The study team will complete an electronic form after each call to collect information from both treatment and control schools (Appendix A). All principals will be asked to verify teacher grade and subject assignments and whether there have been any recent changes related to the school's instructional structure. Principals in treatment schools will also be asked if they are encountering challenges implementing departmentalized instruction. Public Impact will schedule follow-up calls with principals of treatment schools who indicate they need more support to implement departmentalization.

Principal interview protocol. During the spring 2019 monitoring call, the study team will also ask treatment and control principals an additional set of questions (Appendix A). The study team will collect standardized information from all study principals on factors considered when deciding teachers' subject (if appropriate) and grade assignments, teachers' communication with parents, and the schools' and teachers' handling of disciplinary issues. We will also ask principals of treatment schools about their perceptions of the challenges and benefits of departmentalization.

Class schedules. In spring 2019, we will collect class schedules for math, reading, or self-contained 4th grade classes in schools selected for video-recordings. The list will include all math and reading classes, including the day of the week and time of day they are scheduled. This

information will be used to randomly select and schedule specific classes to video-record. To limit the burden on teachers and study costs, the study team will randomly select 100 schools (half treatment and half control) to participate in the video-recordings during the first year of implementation. By February 2019, we will send a letter to 4th grade teachers outlining the need to collect information on their daily/weekly class schedule and student rosters (Appendix D). Field staff will enter the information provided by the teacher directly into an electronic spreadsheet.

Student rosters. In spring 2019, a list of students will be obtained from 4th grade teachers for the classes selected to be video-recorded. This list will be used to develop parent permission packets and to accurately track returned forms. We will use this student list to obtain parent permission for all students in classes being video-recorded during spring 2019. Field staff will enter the information provided by the teacher directly into an electronic spreadsheet.

Videos of classroom instruction. To measure the quality of instruction and teacher-student interactions, in spring 2019 the study team will video-record an average of two 30-minute lessons of 4th grade classes selected to be video-recorded. Study team videographers will record and upload the videos, and study team members will rate the videos using the Classroom Assessment Scoring System (CLASS) observation instrument. The CLASS measures the quality of student-teacher interactions, is valid and reliable (Kane and Staiger 2012; Pianta et al. 2012), and has strong procedures for training raters (Pianta et al. 2012). It is also suitable for teachers in multiple subjects. To help ensure the quality of the ratings for the study, each rater will be assigned an even mix of treatment and control teachers and will be blind to teachers' intervention status. This approach will address the potential for rater bias due to expectations about the effect of departmentalized instruction. Raters will be thoroughly trained and certified on the CLASS with regular calibration throughout the coding period. Each lesson will be scored by a single rater; however, to increase the reliability of the ratings, a different rater will observe each video for a given teacher. The video recordings will occur during teachers' normal class lessons and will not impose any additional burden on teachers.

Teacher survey. A thirty-minute, web-based teacher survey will collect information about teachers' time devoted to instruction, planning, and professional development, as well as their opportunities to coordinate with other teachers, and their perceptions of the successes and challenges related to planning and providing instruction and building relationships with students and parents (Appendix B). The survey will also measure teacher satisfaction and confidence in their teaching and level of awareness of student learning styles. Teachers will also be asked to report on their perceptions about the structure of teaching positions in their grade level and how teachers were assigned to classes or subjects. The survey will be administered to both treatment and control teachers; however, to limit the burden on teachers and study costs, we will only survey 4th grade teachers during the first year of implementation (spring 2019).

District administrative records on teacher effectiveness from the 2016–2017 school year. The study will use information on teachers' effectiveness in math and reading from the 2016–2017 school year for two main purposes:

- For teachers who taught 4th or 5th grade in a study school in the 2017–2018 school year (the final baseline year), we will examine whether departmentalization had different impacts on the retention of teachers with high and low baseline effectiveness scores.
- For teachers who taught 4th or 5th grade in a study school in the 2018–2019 school year (the first implementation year), we will examine whether teachers assigned to teach math and reading in treatment schools had higher baseline effectiveness scores than those assigned to teach math and reading in control schools. We will also compare treatment principals' assignment decisions with the assignments based solely on the baseline effectiveness scores.

Although the 2016–2017 school year is not the final baseline year, it will be the most recent school year for which principals will have teacher effectiveness information (if available) when making decisions about teachers' assignments for the 2018–2019 school year. Therefore, by collecting these data, the study will be able to assess how closely principals relied on this information when making assignments.

In districts where teacher effectiveness scores from the 2016–2017 school year are available, we will request this information for all 4th through 8th grade teachers in the district who taught math or reading that year (Appendix C). The requested data will not be limited only to teachers who taught in the study schools or study grades (grades 4 and 5). As discussed above, one of the groups whose baseline effectiveness we would like to measure consists of 4th and 5th grade teachers in the study schools in 2018–2019. However, at the time that we request effectiveness data (starting in spring 2018), districts will not know who those teachers are. In fact, some of those teachers may have taught in other grades or schools in the 2016–2017 school year before getting assigned to teach 4th or 5th grade in the study schools. Therefore, we will request data on all teachers in the district who are expected to have effectiveness scores from the 2016–2017 school year. For teachers in the study who do not have such scores, we will impute those scores based on their years of teaching experience.

In districts where teacher effectiveness scores are not available, the study team will estimate teachers' effectiveness from the math and reading test scores of their students in spring 2017 (Appendix C). To estimate teachers' effectiveness, we will compare spring 2017 student test scores across teachers while statistically controlling for the students' characteristics and prior test scores. As described previously, because we would like to measure the effectiveness of all 4th through 8th grade teachers in the district who taught math or reading in the 2016–2017 school year, we will request spring 2017 test scores on all 4th through 8th grade students, linked with their teachers. Their prior test scores will come from spring 2016.

District administrative student and teacher records from the 2017–2018 and 2018–2019 school years. In the summer and fall of 2019, we will collect administrative records from the final baseline year (2017–2018) and the first implementation year (2018–2019) on two topics (Appendix C): (1) student outcomes and characteristics and (2) teachers' school assignments and characteristics. The data we will collect on these topics will be identical in districts with and without teacher effectiveness scores. We discuss each topic next.

Student outcomes and characteristics. District administrative student records from the 2017–2018 and 2018–2019 school years will serve two key purposes:

- Compare students in treatment and control schools at baseline: We will compare their baseline outcomes (achievement, attendance, and disciplinary incidents) from the 2017–2018 school year. We will also compare their characteristics (for example, gender, age, free and reduced-price lunch status, special education status, and English learner status). These data will allow us to determine whether random assignment produced treatment and control groups that were similar at baseline.
- Estimate the impacts of departmentalized instruction on student outcomes after one year of implementation: We will estimate impacts on student achievement, attendance, and disciplinary incidents in the 2018–2019 school year. Students’ characteristics and baseline outcomes from 2017–2018 will serve as covariates in the impact estimation models to increase the precision of the estimates.

We will request these data for students enrolled in grades 2 through 4 in a study school at the time of random assignment (spring 2018). The study sample is based on students enrolled at the time of random assignment because those students are expected to be similar in treatment and control schools before the study begins, whereas students who join study schools afterwards may not be. Students enrolled in grades 3 and 4 in spring 2018 are expected to be in the study grades (grades 4 and 5) in the first implementation year. Students enrolled in grade 2 in spring 2018 are expected to reach a study grade (grade 4) by the second implementation year. For all students in this sample, we will request data from both years (2017–2018 and 2018–2019) regardless of how long they stayed in the study schools. This will allow us to have outcome data on students who leave the study schools but stay within the district, minimizing the potential for bias from missing outcome data.

Teachers’ school assignments and characteristics. District administrative records on teachers’ school assignments and characteristics from the 2017–2018 and 2018–2019 school years will serve two key purposes:

- For teachers who taught 4th or 5th grade in a study school in the 2017–2018 school year, we will use the school assignment data to estimate the impact of departmentalized instruction on teacher retention. We will also use data on their characteristics as covariates in the impact estimation models.
- For teachers who taught 4th or 5th grade in a study school in the 2018–2019 school year, we will compare the characteristics of teachers in treatment and control schools to assess whether departmentalized instruction led to changes in the types of teachers who chose to work in schools and grades with this staffing structure.

Teacher characteristics that we will collect include demographics (age, sex, race, and ethnicity); educational attainment (certifications, degrees, and scores on licensure or certification exams); and years of teaching experience.

District administrative student and teacher records from the 2019–2020 school year. In the summer and fall of 2020, we will collect administrative records from the second implementation year, 2019–2020, on (1) student outcomes and characteristics and (2) teachers’ school assignments and characteristics.

Student records from the 2019–2020 school year will allow us to examine the impacts of departmentalized instruction on student achievement and behavior after two years of implementation. We will collect these records for the same students who were included in the previous request submitted in the fall of 2019—students enrolled in grades 2 through 4 in study schools at the time of random assignment. This will allow us to examine how impacts evolve for a constant sample of treatment and control students who were similar at the beginning of the study.

Records on teachers' school assignments and characteristics from the 2019–2020 school year will serve a number of purposes. For teachers who taught 4th or 5th grade in a study school in the 2017–2018 school year, we will examine whether departmentalized instruction affected their likelihood of working in the same school two years later. For teachers who taught 4th or 5th grade in a study school in the 2018–2019 school year, we will examine whether it affected their likelihood of working in the same school the next year. For teachers who taught 4th or 5th grade in a study school in the 2019–2020 school year, we will compare the characteristics of teachers in treatment and control schools to assess whether departmentalized instruction led to changes in the types of teachers who chose to work in schools and grades with this staffing structure.

Parent permission forms. We will distribute paper permission forms to parents of students in the 4th grade classrooms selected for video-recording in spring 2019. In districts that require active consent, we will collect permission forms from parents or guardians to document permission for students to be included in videos of classroom instruction (Appendix E). In districts that permit passive consent, we will collect forms from parents who indicate that they do not give permission for their child to be included in the videos. The permission forms will be collected in fall/winter of the 2018-2019 school year in preparation for video-recording classroom instruction in spring 2019. Videographers will have a list of which students' parents provided permission to be recorded (and which did not), and they will be trained to seat children without permission outside of the view of the camera. All consent materials will be reviewed and approved by district research boards and the study's IRB. The IRB approval number and contact information will be included on the parent permission forms and accompanying letter that will provide information about how the recordings will be used, by whom, and their destruction at the end of the study. Study field staff will bring parent consent forms to teachers' classrooms to be sent home with students and returned to the teacher prior to video-recording classrooms.

Student assent form. Although student assent is typically reserved for students in 6th grade or older, we will adhere to any IRB or district requirements to include student assent and have included an assent form in Appendix E.

We are not requesting OMB approval for the collection of information obtained from departmentalization design meeting forms or the video recordings of teachers' classroom. Neither of these data collection activities will impose an additional burden on principals or teachers, as explained above.

A2. Purpose and use of data

Data for this evaluation will be collected and analyzed by Mathematica and its partners. This work will be completed under contract number ED-IES-17-C-0064. The data will be used to address the study's research questions, as shown in Table A.2.

Table A.2. Research questions and data sources

| Research question | Data sources ^a |
|---|---|
| Impacts of departmentalization on student and teacher outcomes | |
| <ul style="list-style-type: none"> • What is the impact of departmentalization in grades 4 and 5 on student outcomes, such as achievement in math and reading, attendance, and disciplinary incidents? (RQ1) | District administrative records |
| <ul style="list-style-type: none"> • What is the impact of departmentalization in grades 4 and 5 on teacher outcomes, such as instructional quality, teachers' relationships with students and parents, job satisfaction, confidence in teaching abilities, and retention? (RQ2) | Videos of classroom instruction, teacher survey, district administrative records |
| Impacts of specific approaches to departmentalization | |
| <ul style="list-style-type: none"> • Do the impacts of departmentalization differ based on whether principals have access to teacher effectiveness scores when assigning teachers to subjects? (RQ3) | District administrative records |
| Implementation of departmentalization instruction | |
| <ul style="list-style-type: none"> • How did schools structure departmentalization, including number of subjects and classes per teacher, assignment of teachers to subjects, and time allocated to instruction and planning? (RQ4) | School agreement forms, departmentalization design meeting forms, principal interview, teacher survey |
| <ul style="list-style-type: none"> • How do principals' actual assignments of teachers to subjects compare with assignments based solely on baseline teacher effectiveness scores? (RQ5) | District administrative records, departmentalization design meeting forms |
| <ul style="list-style-type: none"> • What challenges and benefits do principals and teachers perceive in switching to departmentalization? (RQ6) | Principal interview, teacher survey |

^a Information from the monitoring calls will be used to identify respondents for the teacher survey; verify schools' compliance with random assignment to implement departmentalized instruction or not; and identify teachers who are teaching 4th and 5th grade within the study schools so that the teacher retention analysis (RQ2) can be limited to those teachers. Information obtained from the class schedules, student rosters, and parent permission and student assent forms will be used to identify classes to be video-recorded and students who may appear in the recordings.

The evaluation is expected to be completed in 4 years. Table A.3 shows the schedule of data collection activities and the overall evaluation timeline.

Table A.3. Schedule of major study activities

| Activity | Spring 2018 | Summer 2018 | Fall 2018 | Spring 2019 | Summer 2019 | Fall 2019 | Spring 2020 | Summer 2020 | Fall 2020 | Spring 2021 | Summer 2021 |
|--|-------------|-------------|-----------|-------------|-------------|-----------|-------------|-------------|-----------|-------------|-------------|
| Complete school agreement form | X | | | | | | | | | | |
| Complete departmentalization design meeting form | X | X | | | | | | | | | |
| Complete monitoring forms | | | X | X | | X | X | | | | |
| Conduct principal interview | | | | X | | | | | | | |
| Obtain class schedules | | | | X | | | | | | | |
| Obtain student rosters | | | | X | | | | | | | |
| Obtain parent permission | | | | X | | | | | | | |
| Obtain student assent | | | | X | | | | | | | |
| Conduct videos of classroom instruction | | | | X | | | | | | | |
| Conduct teacher survey | | | | X | | | | | | | |
| Collect administrative records on teacher effectiveness from 2016–2017 (in districts with effectiveness scores) | X | X | X | | | | | | | | |
| Collect administrative records on teacher effectiveness from 2016–2017 (in districts without effectiveness scores) | X | X | X | | | | | | | | |
| Collect administrative student and teacher records from 2017–2018 and 2018–2019 (in all study districts) | | | | | X | X | | | | | |
| Collect administrative student and teacher records from 2019–2020 (in all study districts) | | | | | | | | X | X | | |
| Prepare study report | | | | | | | | | X | X | |
| Prepare restricted-use data file | | | | | | | | | | | X |

A3. Use of technology to reduce burden

The data collection plan is designed to obtain information in an efficient way that minimizes respondent burden, including the use of technology when appropriate. For example, the teacher survey will be web-based, which will enable respondents to complete the data collection instrument at a location and time of their choice. Its built-in editing checks and programmed skips will also reduce the level of response errors and data retrieval callbacks. However, teachers will be able to respond to the survey by mail, phone, or in-person if they prefer. As another example, we will ask districts to provide electronic copies of student and teacher records. While

we will specify the required data elements, we will accept any format the district wishes to use, to reduce burden for them. To help ensure study participants' confidentiality, districts will upload data files directly to a secure data site.

A4. Efforts to avoid duplication of effort

No similar evaluations are being conducted, and there is no equivalent source for the information to be collected. Moreover, the data collection plan reflects careful attention to the potential sources of information for this study, particularly to the reliability of the information and the efficiency in gathering it. The data collection plan avoids unnecessary collection of information from multiple sources. For example, student achievement will be measured using scores from state-administered student assessments, instead of administering an assessment as part of this study.

Information obtained from the classroom observation videos, teacher survey, and principal interview, is not available elsewhere.

A5. Methods of minimizing burden on small entities

No small businesses or entities will be involved as respondents.

A6. Consequences of not collecting data

The data collection plan described in this submission is necessary for ED to conduct an impact evaluation of the effect of departmentalized instruction on teacher and student outcomes. Additionally, the data collection is necessary to better understand how schools implement departmentalization and the challenges and benefits of switching to departmentalization in grades 4 and 5. The consequences of not collecting specific data are outlined below:

- Without the **district administrative student records**, we would have to administer student assessments instead of using their state math and reading test scores. Without information on student characteristics, we would not be able to fully describe the study sample or verify the effectiveness of school random assignment.
- Without the **district administrative records on teacher effectiveness**, we would not be able to assess how principals' actual teacher assignments compare to assignments based solely on objective measures of teacher effectiveness. We would also not be able to examine whether the impacts of departmentalization differ when principals did or did not have access to teacher effectiveness scores.
- Without the videos of teachers' classroom instruction that will be used to create **classroom observation rubric scores**, we would not be able to measure the impact of departmentalization on teachers' instruction or student-teacher relationships.
- Without the **teacher survey**, we would not have the data needed to describe teachers' preparation experiences and background characteristics, job satisfaction, and confidence in their teacher abilities. Without these data, we would not be able to measure the impact of departmentalization on group or individual planning time and professional development.

- Without the **monitoring calls**, we would not be able to verify that study schools remained in their assigned condition (either departmentalized instruction in grades 4 and 5, or self-contained classes). We would also not be able to identify schools that may need additional technical assistance with departmentalizing.
- Without the **principal interview**, we would not have information on how principals' approaches to parent communication and disciplinary incidents differ between departmentalized and self-contained schools. We would also not have information on principals' perceptions of the challenges and benefits of departmentalization and the approach used to assign teachers to subjects.
- Without the **school agreement form**, we would not have baseline information on how treatment and control schools structure their grades 4 and 5.

A7. Special circumstances

There are no special circumstances associated with this data collection.

A8. Federal register announcement and consultation

a. Federal register announcement

A 60-day notice to solicit public comments was published in the Federal Register, Volume 83 No. 5, page 795 on 1/8/2018.

To date, no public comments have been received.

The 30-day notice will be published to solicit additional public comments.

b. Consultations outside the agency

In formulating the intervention and evaluation design for this evaluation, the study team sought input from several individuals with expertise in departmentalized instruction, including Lucy Steiner of Public Impact and Florence Chang of Jefferson County Public Schools.

Additionally, a technical working group (TWG) will provide input on the study design, data collection instruments, analyses, and reports. This input will help ensure the study is of the highest quality and that findings are relevant to policymakers, school districts, and principals. Table A.4 lists the individuals who have agreed to serve on the TWG, their affiliation, and their relevant expertise.

Table A.4. Technical Working Group Experts

| Name | Affiliation | Expertise |
|-------------------|--|--|
| Allison Atteberry | Assistant Professor, University of Colorado Boulder | Teacher assignment policies; school reforms |
| Thomas Cook | Professor Emeritus of Sociology, Psychology, Education, and Social Policy, Northwestern University | Evaluation methods |
| Cassie Guarino | Professor of Education and Public Policy, UC Riverside | Methods for estimating teacher effectiveness |
| James Kemple | Executive Director, The Research Alliance for New York City Schools, New York University | School reforms; Evaluation methods |
| Lisa Martin | Chief Academic and Accountability Officer, DeKalb County School District | Departmentalized instruction; Teacher assignment policies |
| Audra Parker | Associate Professor, George Mason University | Departmentalized instruction; Teacher assignment policies |
| Chris Rhoads | Associate Professor, University of Connecticut-Neag School of Education | Evaluation methods |
| Jonah Rockoff | Professor of Finance and Economics, Columbia Business School | School reforms; Methods for estimating teacher effectiveness |
| Brian Schultz | Chief Academic Officer, Charlotte-Mecklenburg Schools | Departmentalized instruction; Teacher assignment policies |

c. Unresolved issues

There are no unresolved issues.

A9. Payments or gifts

Incentives have been proposed for teachers participating in the study. The proposed amounts are within the incentive guidelines outlined in the March 22, 2005 memo, “Guidelines for Incentives for NCEE Evaluation Studies,” prepared for OMB. To maximize the success of our data collection effort we will provide incentives to teachers to offset their time and effort with completing the data collection activities. Incentives are also proposed because high response rates are needed to make the study findings reliable. Teachers are the targets of numerous requests for data on a wide variety of topics from state and district offices, independent researchers, and ED. Although some districts will have solicited buy-in from teachers to participate in the evaluation, our recent experience with numerous teacher data collection efforts supports our view that obtaining teacher buy-in does not guarantee teachers will devote the time it takes to complete data collection activities, and monetary incentives increase the likelihood of their cooperation.

Teacher incentive for collecting parent permission forms. We propose to provide teachers with an incentive for collecting permission forms from parents that will allow us to record students during the video recordings of selected classes. Teachers will receive \$25 for distributing the parent consent forms. Because it will be critical for the study to obtain parental permission for as many students as possible, we will offer teachers in active consent districts an additional \$25 for collecting parent permission forms for at least 85 percent of their students. This represents a maximum of \$50 for any one teacher (roughly \$2 per student form and less than the NCEE-recommended \$3 per low-burden student report). We expect teachers will have

to remind students and call or email parents to obtain 85 percent returns. Our goal is to ensure that we have as many students in the classroom as possible during the video recordings to accurately evaluate the teacher's performance during a typical day of instruction. Field staff from the study team will be responsible for collecting the permission forms from the teachers. We believe that the differential incentive proposed will further motivate teachers to collect the parent permission forms.

Teacher respondent payment. To acknowledge the 30 minutes required to complete the teacher survey, we propose to offer a \$30 incentive to teachers who complete the survey.

A10. Assurances of confidentiality

Mathematica and its research partners will conduct all data collection activities for this study in accordance with relevant regulations and requirements, which are:

- The Privacy Act of 1974, P.L. 93-579 (5 U.S.C. 552a)
- The "Buckley Amendment," Family Educational Rights and Privacy Act (FERPA) of 1974 (20 U.S.C. 1232g; 34 CFR Part 99)
- The Protection of Pupil Rights Amendment (PPRA) (20 U.S.C. 1232h; 34 CFR Part 98)
- The Education Sciences Reform Act of 2002, Title I, Part E, Section 183

The research team will protect the confidentiality of all data collected for the study and will use it for research purposes only. The Mathematica project director will ensure that all individually identifiable information about respondents remains confidential. All data will be kept in secured locations and identifiers will be destroyed as soon as they are no longer required. All members of the study team having access to the data will be trained and certified on the importance of confidentiality and data security. When reporting the results, data will be presented only in aggregate form, such that individuals, schools, and districts are not identified. Included in all voluntary requests for data will be the following or similar statement:

"Responses to this data collection will be used only for research purposes. The report prepared for this study will summarize findings across the sample and will not associate responses with a specific district, school, or individual. We will not provide information that identifies you, your school, or your district to anyone outside the study team, except as required by law. Additionally, no one at your school or in your district will see your responses."

The following safeguards are routinely used by Mathematica to maintain data confidentiality, and they will be consistently applied to this study:

- All Mathematica employees are required to sign a confidentiality pledge (Appendix H) that emphasizes the importance of confidentiality and describes employees' obligations to maintain it.
- Personally identifiable information (PII) is maintained on separate forms and files, which are linked only by random, study-specific identification numbers.

- Access to hard copy documents is strictly limited. Documents are stored in locked files and cabinets. Discarded materials are shredded.
- Access to computer data files is protected by secure usernames and passwords, which are only available to specific users who have a need to access the data and who have the appropriate security clearances.
- Sensitive data is encrypted and stored on removable storage devices that are kept physically secure when not in use.

Mathematica's standard for maintaining confidentiality includes training staff regarding the meaning of confidentiality, particularly as it relates to handling requests for information, and providing assurance to respondents about the protection of their responses. It also includes built-in safeguards concerning status monitoring and receipt control systems. In addition, all study staff who have access to confidential data must obtain security clearance from ED which requires completing personnel security forms, providing fingerprints, and undergoing a background check.

The program is currently preparing a system of records notice (SORN) and a privacy impact assessment (PIA). The data are to be stored both electronically and in paper copy. The data will be retrievable by ID, and will be maintained and disposed of in accordance with the Department's Records Disposition requirements. The electronic files will be kept on a password protected server. The paper copy will be kept in a locked file cabinet, and all access to data in both electronic and paper form will be restricted to study staff on a need to know basis. The security protections for the content will be identified in the SORN.

A11. Justification for sensitive questions

No questions of a sensitive nature will be included in this study.

A12. Estimates of hours burden

Table A.5 provides an estimate of burden for the data collections, broken down by instrument and respondent. These estimates are based on our prior experience collecting administrative data from districts and obtaining parent permission, as well as pretests of the teacher survey and principal interview protocol.

Table A.5. Estimated response time for data collection

| Respondent/Data request | Number of targeted respondents | Expected response rate (%) | Expected Number of responses | Unit response time (hours) | Annual Total response time over 3-year data collection (hours/year) | Total burden (hours) |
|---|--------------------------------|----------------------------|------------------------------|----------------------------|---|----------------------|
| Principals | | | | | | |
| School agreement form, spring 2018 | 200 | 100 | 200 | 0.25 | 16.7 | 50 |
| Monitoring calls in fall and spring of the 2018-2019 and 2019-2020 school years (4 monitoring calls at 15 minutes each or 1 hour total response time for calls) | 200 | 85 | 170 | 1 | 56.7 | 170 |
| Principal interview conducted spring 2019 | 200 | 85 | 170 | 0.25 | 14.2 | 42.5 |
| Teachers | | | | | | |
| Class schedules of 4th grade teachers selected for videos of classroom instruction, spring 2019 | 300 | 100 | 300 | 0.5 | 50 | 150 |
| Student rosters for 4th grade teachers selected for videos of classroom instruction, spring 2019 | 300 | 100 | 300 | 0.5 | 50 | 150 |
| Teacher assistance collecting parent permission forms for students in classrooms selected for videos of classroom instruction, spring 2019 | 300 | 100 | 300 | 2 | 200 | 600 |
| Teacher survey (all 4th grade teachers), spring 2019 | 600 | 85 | 510 | 0.5 | 85 | 255 |
| Districts | | | | | | |
| Records on teacher effectiveness from 2016–2017 (in districts with effectiveness scores), spring through fall 2018 | 6 | 100 | 6 | 16 | 32 | 96 |
| Records on teacher effectiveness from 2016–2017 (in districts without effectiveness scores), spring through fall 2018 | 6 | 100 | 6 | 24 | 48 | 144 |
| Student and teacher records from 2017–2018 and 2018–2019 (in all study districts), summer/fall 2019 | 12 | 100 | 12 | 20 | 80 | 240 |
| Student and teacher records from 2019–2020 (in all study districts), summer/fall 2020 | 12 | 100 | 12 | 16 | 64 | 192 |
| Parents | | | | | | |
| Parent permission form (100 schools' 4th grade classes; 3 teachers per school; 22 students per class), spring 2019 | 6,600 | 85 | 5,610 | 0.17 | 317.9 | 953.7 |
| Students | | | | | | |
| Student assent form in up to 2 districts that might require assent, spring 2019 | 1,100 | 85 | 935 | 0.17 | 53 | 159 |
| Total (rounded) | 9,836^a | | 8,531 | | 1,067 | 3,202 |

^a The total number of targeted respondents (9,836) is the sum of targeted responses across data requests from a total of 8,512 unique respondents including 12 districts, 200 principals, 600 teachers, 6,600 parents and 1,100 students across the three years of data collection.

The number of targeted respondents and responses are 9,836 and 8,531. The total burden is estimated at 3,202 hours or an average of 1,067 annual burden hours calculated across 3 years of data collection. Video recordings of classroom instruction are not calculated in the burden estimate because the recordings will be conducted by the study team and occur during teachers' regular class instruction. Therefore, they will not impose any additional time burden on teachers. Time to complete the departmentalization design meeting forms is not included in the burden estimate because the forms will be completed by study staff after they meet with principals to provide technical assistance. It will not impose an additional burden on principals.

The total of 3,202 hours includes the time for:

- 200 principals to complete school agreement forms (50 hours); 170 principals (85 percent of 200 principals) to participate in four 15-minute monitoring calls (170 hours) and one 15-minute interview (42.5 hours);
- 300 4th grade teachers (half of the 600 4th grade teachers that the study selects for classroom observations) to provide class schedules (150 hours), provide class rosters (150 hours), and collect parent permission forms (600 hours); 510 4th grade teachers (85 percent of 600 4th grade teachers) to complete a 30-minute survey (255 hours);
- 6 districts to provide teacher effectiveness scores in 2018 (96 hours); 6 districts to provide student test scores linked to teachers in 2018 (144 hours); 12 districts to provide student and teacher records in 2019 (240 hours); and 12 districts to provide student and teacher records in 2020 (192 hours);
- 5,610 parents or guardians of 4th grade students (85 percent of 6,600 4th grade parents across the 300 classes selected for observations) to review and complete (if active consent is required) a parent permission form (953.7 hours); and
- 935 students (85 percent of 1,100 from 4th grade classes in two districts) to complete a student assent form for classroom observations (159 hours).

A13. Estimate of cost burden to respondents

There are no direct or start-up costs to respondents associated with this data collection.

A14. Annualized cost to the federal government

The total cost to the federal government for this study is \$6,922,150. The estimated average annual cost—including recruiting districts, designing and administering all collection instruments, processing and analyzing the data, and preparing reports—is \$1,730,538 (the total cost divided by the four years of the study).

A15. Reasons for program changes or adjustments

This is a new collection.

A16. Plans for tabulation and publication of results

a. Analysis plan

The evaluation will estimate the impact of departmentalized instruction on student and teacher outcomes and document schools' implementation of departmentalized instruction. The

study also includes several supplementary analyses to provide additional policy-relevant information. Below, we describe the main impact and implementation analyses.

Impact analyses. We will use regression models to estimate the impact of departmentalized instruction on student outcomes (standardized math and reading test scores, attendance, and disciplinary incidents) and teacher outcomes (amount of instructional planning and professional development, quality of student-teacher relationships, teaching practices, job satisfaction, and retention). Because the study has a randomized controlled trial design, simply comparing the outcomes of teachers and students in schools randomly assigned to treatment and control groups should yield unbiased estimates of the impacts of departmentalized instruction. However, to increase the precision of our estimates, we will also control for baseline student, teacher, and school characteristics. We will estimate these models for the full combined sample and separately in districts with and without teacher effectiveness scores, to see how the effects of departmentalized instruction differ across these types of districts. Results from the impact analyses will provide evidence on the effects of departmentalized instruction on student achievement and other key outcomes of interest.

Implementation analyses. Our implementation analysis will describe schools' approaches to departmentalization and benefits and challenges encountered. We will document the structure of departmentalization in treatment schools, including number of subjects and classes per teacher, assignment of teachers to subjects, and time allocated to instruction and planning. We will also describe how principals assigned teachers to subjects (in districts with and without teacher effectiveness scores) and any implementation challenges. In both treatment and control schools, we will document time for instruction, planning, and teacher professional development. Understanding the implementation experiences and challenges of schools and teachers participating in the intervention will provide important information for districts and elementary schools considering departmentalizing instruction. The implementation analysis will also provide important context for interpreting the impact results.

b. Publication plan

We will present the results of these analyses in a report, projected to be released in 2021. The report will be written in a style and format accessible to policymakers and educators and will comply fully with the standards set by the National Center for Education Statistics.

A17. Approval not to display the expiration date for OMB approval

The Institute of Education Sciences is not requesting a waiver for the display of the OMB approval number and expiration date. The study will display the OMB expiration date.

A18. Exception to the certification statement

No exceptions to the certification statement are requested or required.

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