

2. OVERVIEW OF THE METHODOLOGY

The Finance Project (TFP), with its partner Augenblick, Palaich and Associates (APA), developed a rigorous methodological approach to analyze the adequacy of public education funding at the system and school levels for public schools and public charter schools in the District of Columbia (DC). Over a 15-month period beginning in September 2012, the TFP/APA study team created and implemented a complex, multimethod study design aimed at developing a sound, data-driven assessment of the costs of providing an adequate public education to all DC students, prekindergarten (pre-K) through grade 12, including those with identified learning needs who require specialized resources that entail additional costs.

Defining Adequacy

As a first step toward defining and measuring the costs of required resources, the study team addressed the question of what constitutes adequacy and what this term means in the context of funding for District of Columbia Public Schools (DCPS) and public charter schools. DC policymakers and education leaders wanted to study education adequacy as a basis for resetting the parameters of the District's Uniform Per Student Funding Formula (UPSFF). Their aim was to clearly define educational standards and requirements and the inputs needed to meet them. Inputs include all school-level and system-level instructional, student support, and administration resources, as well as other education resources (e.g., course requirements, time objectives, educational experiences, strategic planning, and coordination), so all schools have a sufficient amount of funding and other resources to achieve educational outcomes (e.g., achieving certain proficiency levels in core subjects and earning a high school diploma). Based on this definition, the specification of standards for measuring student performance was a critical first step to conduct the costing out analysis.

“Adequacy” is defined as the educational input requirements to achieve desired student outcomes, based on specified performance objectives.

For costing out purposes, the study team determined the cost of ensuring that DCPS and public charter schools at all grade levels have adequate resources to meet the expectations associated with the specified standards and to avoid any consequences associated with not meeting those standards. Two widely accepted, but philosophically different, approaches to determining relevant costs exist:

- The first approach focuses on the *costs of providing necessary inputs associated with standards and requirements* (e.g., schools are required to ensure certain services can be provided or certain procedures can be implemented). The costs of compliance express the burden of meeting those requirements. However, compliance does not ensure that the basic objectives are fulfilled.
- The second approach focuses on the *costs of achieving desired academic outcomes* (e.g., that student performance increases at a particular rate, or that schools will avoid the sanctions created as part of standards-based reform, which are designed to sanction

schools that fail to meet those objectives). If schools are to fulfill the underlying objectives of DC law that all students receive “adequate regular [general] education services,”¹ student performance must increase sufficiently across all schools, grade levels, and neighborhoods throughout the city. Although student performance results cannot be guaranteed, sufficient resources can be provided so all students have a meaningful opportunity to meet the objectives.

The TFP/APA study team employed the second approach. The DC Education Adequacy Study focused on clarifying resources required to reasonably prepare all students to achieve proficiency based on DC academic standards at each grade level, as measured through the DC Comprehensive Assessment System (DC CAS) and the additional quality school assessment for public charter schools implemented by the District’s Public Charter School Board (PCSB). It also took into account requirements for meeting the Common Core State Standards and the Partnership for Assessment of Readiness for College and Careers (PARCC),² when they are implemented beginning in school year 2014–2015. The study team worked closely with multiple stakeholders, including the Advisory Group, DCPS, PCSB, the Office of the State Superintendent of Education (OSSE), and the state board of education, to specify the standards that guided the study. The detailed standards framework the study team adopted is presented in Appendix B.

The standards set clarified the resources required to reasonably prepare all students to achieve proficiency based on DC academic standards at each grade level.

The standards guiding the study encompassed requirements for all students and additional provisions and requirements for students with identified learning needs. Following are requirements for all students:

- *Instructional inputs*, including mandated services or programs that must be provided (e.g., the minimum number of days students must attend school), curricula that must be taught, and educational experiences that must be offered.
- *Student achievement outputs/outcomes*, including requirements focused on the completion of academic programs of study and the level of proficiency students must achieve on standardized tests, such as the DC CAS assessments and the anticipated PARCC.
- *Additional system-level requirements*, including requirements that affect educational operations across schools in a multicampus system (e.g., those related to student services, data systems, strategic planning, and coordination).

¹ DC Official Code §38.2901, definitions paragraph 5.

² PARCC is one of two assessment consortia that have developed achievement tests aligned to the Common Core Standards.

Additional requirements for students with identified learning needs include provisions for instructional inputs, adaptive educational programs and technology, student achievement outputs/outcomes, and system-level requirements for:

- *Special education students*, including students with varying physical, psychological, social-emotional, communication, and learning disabilities or challenges who require different approaches to teaching, the use of technology, and a specifically adapted classroom or other facilities to be a successful learner. These students are categorized into four levels of need, according to the number of hours per week they require specialized services. Developing resource specifications for these special education students at all school levels—elementary through high school—proved difficult. The difficulty arose, in part, because of different professional perspectives on the levels and balance of additional instructional programming, student support, and therapeutic services these students need to be successful learners. It also reflects the challenges of assigning system-level resources to specific special education levels of need. In some cases, adjustments were made to the recommended staffing or supports based on additional stakeholder input.
- *English language learners*, including students who are not proficient in English. These are students with difficulties in speaking, reading, writing, and understanding English because they were born outside the United States, their native language is not English, and/or their home or community environment has made it difficult for them to develop English proficiency.
- *Students at risk of academic failure*, including students from poor and severely economically disadvantaged families and communities. The study team initially used students' eligibility for free and reduced-price school meals (FARM) as a proxy to identify those with multiple academic or behavioral risk characteristics. A direct one-to-one correlation between low-income status and risk of academic failure does not exist; however, poverty and poor school performance are closely associated, as is experience in the child welfare system. Initially, the study team used this proxy to develop the resource specifications that were costed out to develop the at-risk weight. However, three other criteria were later used to calculate and project funding amounts using a more targeted definition of at risk that identifies students with the lowest income levels who are more likely most at risk:
 - Students who are in foster care;
 - Students who are homeless; and
 - Students who are living in low-income families receiving Temporary Assistance for Needy Families (TANF).

Several stakeholders have raised concerns that these criteria are too narrow and would significantly under-count the number of students who are truly at-risk of academic failure. Others remarked that using eligibility for FARM as a proxy for at-risk status—which was a definition initially considered by the study team—would over-fund schools with a high percentage of low- and moderate-income students who will qualify for subsidized meals but are not truly at-risk of academic failure. The study team recognizes that these deficiencies exist in the proposed working definition. Therefore, as it is

ultimately a policy decision for the Mayor and the City Council to define at-risk status, Therefore, the study team urges DC education leaders to:

- Engage stakeholders further to help refine the definition of at-risk, so that it is targeted to the District's needs; and
 - Align eligibility determination criteria the criteria for determining eligibility with the OSSE's early warning system for identifying students at risk of academic failure., when it is completed.
- Alternative schools students, including students who have multiple risk characteristics that cause them to be over-age, under-credited, and behind-grade in academic performance. The study team relied on OSSE's proposed definition to define eligible alternative education students. They are students who are eligible for a public school education and are not academically proficient and fit one of the of the following descriptions:
- Are under court supervision because of neglect, abuse, or a need for supervision;
 - Have been incarcerated in an adult correctional facility;
 - Are committed to the Department of Youth Rehabilitation Services as a delinquent;
 - Have received multiple short-term suspensions from DCPS or public charter schools;
 - Are on long-term suspension from a DCPS or public charter school;
 - Have been expelled from a DCPS or public charter school, or another jurisdiction, after the required expulsion period has expired;
 - Are seeking admission to a DCPS or public charter school after withdrawing for a period of one or more terms, during which they received no public or private instruction;
 - Are receiving treatment for drug abuse;
 - Have a history of violence;
 - Are chronically truant;
 - Are under-credited;
 - Are pregnant or parenting; or
 - Meet other criteria for at-risk status as defined by OSSE.
- Adult education students, including students who are at least 18 years of age and have family and work responsibilities that make it difficult for them to attend regular high schools. These students require specialized supports and services to earn a high school diploma or equivalency certificate, including a flexible school schedule.

Measuring Adequacy

To cost out the level of funding needed to meet performance expectations, the TFP/APA study team gathered and analyzed data and information using two nationally recognized and accepted methodologies and incorporated elements of a third methodology:

- A professional judgment panel (PJ), which relies on the expertise and experience of professional educators to specify the resources, staff, and programs that schools at each level need to meet performance expectations and the system-level resources to support effective educational operations in multicampus systems. In the DC Education Adequacy Study, PJ panels used information from the education research—evidence base (EB)—to

help answer questions about how resources should be deployed in schools so students can meet performance expectations. This approach was used as a starting point for the PJ panels and to benchmark results, but it was not fully implemented to produce independent results. The evidence-based approach examines the academic research related to resource allocation and student performance. Resource levels for personnel and other costs are identified for resources that have been shown to contribute to significant statistical improvements in student achievement.

- A *successful schools study* (SS), which provides information on the cost of serving students in a general education setting with no special circumstances; the SS study does not provide information on students with identified learning needs. This approach was used to examine the spending of high-performing schools—both DCPS and public charter schools—as measured against DC academic performance standards, growth in student performance, and the whole school environment.

Each approach has strengths and weaknesses in producing information that can support sound decisions on adequate education funding levels, but none is perfect. Consequently, the TFP/APA study team employed a *blended methodology* that includes both the professional judgment panels and the successful schools study and that incorporates elements of the evidence-based approach. These approaches were used to analyze resource needs from different perspectives and to triangulate findings in order to produce a single cost estimate. The results of data collection and analysis employing these complementary methods were then compared, combined, and interpolated to derive the most reasonable, reliable, data-driven cost estimates.

The study team employed a blend of nationally recognized research approaches: a professional judgment (PJ) approach that brought together professional educators to specify resource needs using evidence-based research (EB) as a starting point and a successful schools (SS) approach that examined spending by high-performing DCPS and public charter schools.

Data collected through these established methods was supplemented with information from focus groups and individual interviews.

Both PJ and SS approaches enable practitioners to examine the base cost of educating a student (i.e., the cost of serving a student without identified learning needs in a general education setting with no special circumstances) in two ways so the cost can be compared and validated. However, these approaches vary in their capacity to identify additional resources needed to serve students with identified learning needs and in their ability to identify the difference in resource costs associated with different educational settings.

For the District of Columbia, the successful schools study could not produce reliable information on the costs of serving students with different types of identified learning needs because the sample sizes for each category of need were too small. In contrast, the PJ panels were able to focus extensive attention on each category of need and develop targeted resource specifications. These specifications were then reviewed; adjustments were made based on input from subsequent panels and data and information from interviews with OSSE, DCPS, and charter school leaders. By employing multiple methods, the study team was able to ensure at least two sources of relevant data and information for all critical cost estimation areas addressed in the study (see Appendix C).

The study team also conducted several focus groups and held individual interviews with key stakeholders. These sessions contributed additional information to help fill gaps, clarify issues raised by the PJ panels and the SS study, and verify findings from other sources.

Additional fiscal analyses were conducted using data provided by DCPS, PCSB, and various city agencies, including the:

- Department of General Services (DGS);
- Department of Health (DOH);
- Department of Behavioral Health (DBH),
- Department of Transportation (DDOT),
- Metropolitan Police Department (MPD),
- Chief Financial Officer (OCFO),
- Attorney General (OAG),
- Contracting and Procurement (OCP),
- Chief Technology Officer (OCTO), and
- Office of the State Superintendent of Education (OSSE).

These sources provided primary data relevant to other key costing issues, such as student support staff (e.g., school nurses and social workers), school resource officers, facilities management, and maintenance costs. These sources also provided information on funding that benefits DCPS and public charter schools but flows through District agencies and DCPS/charter school-driven cost differences.

Data and information from all of these sources were analyzed and synthesized with the results from the analytic methods discussed earlier. (See Appendix D for a list of focus group participants. See Appendix E for a list of individuals who provided data and information through phone and face-to-face interviews and meetings.)

Together, all these data sources and analyses enabled the study team to identify the following key cost elements for DC schools to meet performance expectations:

- The *base cost* of educating an average student to meet state performance expectations; this base cost does not include capital costs, such as school building construction costs, pension costs for certified educators, or debt service costs;
- Cost *weights* for educating students at different grade levels and with identified learning needs (e.g., special education students, English language learners, and students at risk of academic failure) to meet performance standards; and

- Additional *cost factors* associated with differences between schools in terms of their size and whether they are DCPS or public charter schools, including facilities maintenance and operations (M&O) costs.

Using the Professional Judgment Approach

The professional judgment approach generally is regarded as the most robust methodology for costing out education adequacy. It can be used to identify the base cost figure and adjustments for students with identified learning needs and schools in unique settings. It relies on the expertise and experience of practicing professional educators to specify the resources that schools need to serve all students.

One of the approach's greatest strengths is it brings together educators with diverse experiences, expertise, and authority to address the question of which programs can provide an adequate education and what resources would be required to do so. Panelists pool their talents, starting with teachers and specialists articulating the standards of their field and their experience in adapting to the needs of different students and different learning environments. This is followed by resource specialists translating programs into personnel and is capped by administrators focusing on the trade-offs among alternative programs. The outcome is not what any one individual would have foreseen. Instead, it reflects a blending of diverse expertise from professionals who are most aware of the academic standards and performance goals as well as the types of resources and programs students need most to achieve those goals. The costs of all resources are then determined based on locality-specific prices. (See Appendix F for a summary of guidance to PJ panelists.)

The professional judgment approach is based on the idea that panels of experienced educators can identify the programs and resources that schools need to meet DC performance expectations.

Panel Composition

The Finance Project invited a wide array of current education practitioners in DCPS and public charter schools, as well as other local education administrators and experts, to serve on the PJ panels (see Table 2.1). These individuals were selected based on their professional experience and areas of professional expertise.³ Each panel was composed of five to eight members who

³ Professional judgment panel members were all DC educators and/or education support personnel currently working in DCPS or public charter schools. They included individuals with experience and expertise in the following areas:

- Teachers, all grade levels, public school and public charter schools;
- Teachers in magnet programs;
- Teachers in competitive and/or specialized school programs (e.g., Duke Ellington School for the Arts and McKinley Technology High School);
- Teachers in alternative school programs;
- Teachers certified to teach special education;
- Teachers certified to teach English language learners;
- Teachers with experience teaching in adult education programs;

worked collaboratively to specify resource needs. The study team sought educators with experience working in schools with small and with large enrollments as well as experience with specialized curricula and programs, such as magnet schools, alternative schools, adult education programs, or special subject focuses. (See Appendix G for a list of professional judgment panel members.)

Ten PJ panels were used for the DC Education Adequacy Study.

- *School-level panels:* These three panels identified the resources needed at each school level—elementary school, middle school, and high school. The panel members included teachers, principals, instructional experts, and others most familiar with critical resource needs.
 - Elementary School Panel (prekindergarten for three- and four-year-olds [pre-K3 and pre-K4] and kindergarten [K] through grade 5)
 - Middle School Panel (grades 6 through 8)
 - High School Panel (grades 9 through 12)
- *Identified learning needs panels:* These four panels focused on the additional resources needed for students with identified learning needs, including students enrolled in special education, English language learners, alternative and adult education students, and students at risk of academic failure. This enabled a careful review of needs for different categories of students and how they can best be met within DCPS and public charter schools. Panel members included personnel familiar with the resources required to ensure students with identified learning needs can meet education standards.
 - Identified Learning Needs Panel, Elementary School
 - Identified Learning Needs Panel, Middle School and High School
 - Identified Learning Needs Panel, Adult Education and Alternative Schools
 - Identified Learning Needs Panel, Levels 1–4 Special Education
- *System-level panels:* These two panels reviewed the work of the school-level panels and the identified learning needs panels. In addition, they specified the resources needed at the central local educational agency (LEA) office level to ensure DCPS and public charter schools are supported in a manner that ensures students can meet academic standards. These panels included several system-level experts with deep knowledge of the resources needed at the LEA level to ensure effective and efficient system-level management for public schools and public charter schools.
 - District of Columbia Public Schools System Panel
 - Public Charter Schools System Panel
- *Facilities management and maintenance panel:* Facilities management and maintenance is an important education cost driver, so the study team appointed a PJ panel to focus specifically on resource needs and related costs for school building and grounds. This

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- Principals, all levels, public school and public charter schools;
 - Chief financial officers/school business managers, public school and public charter schools; and
 - Other school support staff, such as school counselors, social workers, nurses, academic deans, and school resource officers.

panel was composed of DCPS and public charter school officials with deep knowledge of facilities cost issues and policy. It also included Department of General Services (DGS) officials who manage portions of DCPS school maintenance.

- **Overall review:** The Advisory Group was responsible for reviewing all of the work done during the course of the study and making final adjustments to the resource specifications at the school and system levels. This group reviewed the work of all the PJ panels, discussed resource prices, examined preliminary cost figures, and attempted to resolve some of the inconsistencies that arose across panels in order to derive aggregate and per-student costs for the representative schools.

Table 2.1: Composition of the Professional Judgment Panels

PANELS	PANELISTS
School-Level Panels <ol style="list-style-type: none"> 1. Elementary: Pre-K–Grade 5 2. Middle School: Grades 6–8 3. High School: Grades 9–12 	<ul style="list-style-type: none"> • Teachers • Principals • Instructional experts working in the schools (e.g., resource teachers, mentor teachers, and accountability specialists)
Identified Learning Needs Panels <ol style="list-style-type: none"> 1. Elementary school identified learning needs 2. Middle school/high school identified learning needs 3. Adult/alternative school identified learning needs 4. Students in special education Levels 1–4 (with individualized education plans) 	<ul style="list-style-type: none"> • Teachers • Principals • Special education resource staff and instructional experts • Adult educators • Instructors and resource staff with expertise serving English language learners and economically disadvantaged children
District of Columbia Public Schools System Panel	<ul style="list-style-type: none"> • DCPS instructional support staff • System-level administrative staff members • System-level budget office staff members • DCPS principals and/or administrators • Staff from the office of the chancellor and DCPS central office staff
Public Charter Schools System Panel	<ul style="list-style-type: none"> • DC public charter schools instructional support staff • DC public charter school principals and/or administrators • Contractors to charter management organizations that provide administrative and financial management support • Public Charter School Board staff
Facilities Management and Maintenance Panel	<ul style="list-style-type: none"> • DC department of general services staff • DCPS budget office staff • DC public charter school principals/chief executive officers/chief financial officers • DCPS school principals/chief financial officers • DCPS, office of the chancellor
Advisory Group	National experts in: <ul style="list-style-type: none"> • Education policy • Education programs • Education finance Members of key DC stakeholder groups

Professional Judgment Panel Process

The panels followed a prescribed procedure in doing their work that included the following steps:

- **Setting student performance standards.** With input from DC education officials, the study team developed a standard set of required instructional, student support, administrative, technology, and other educational resources to guide the PJ panels. The document catalogs the expectations for educational inputs to enable all DC students to achieve outcomes that match state and federal performance levels (see Appendix B).
- **Launching and facilitating the PJ panels' deliberations.** Using uniform procedures, the study team reviewed the student performance standards with each PJ panel and outlined the task of creating representative schools. With facilitation support from the study team, each panel convened for approximately one day to create representative schools and specify resource needs. Panelists were instructed *not* to build their dream school, but to identify the resources specifically needed to meet DC performance standards. However, to the extent existing school resources are not adequate or up to date (e.g., technology), they were encouraged to think broadly about resources that will be needed to provide students with an adequate education in the coming years based on findings from existing educational research and from their experience in DC schools and classrooms. Panelists were instructed to “create a set of programs, curricula, or services designed to serve students with particular needs in such a way that the indicated requirements/objectives can be fulfilled,” and to “use [their] experience and expertise to organize personnel, supplies and materials, and technology in an efficient way [they] feel confident will produce desired outcomes” (see Appendix F).
- **Creating representative schools.** As described in greater detail in Chapter 3, the study team worked with the PJ panels to construct representative schools that reflect current service levels, sizes, and student composition in DC public schools and public charter schools, using available evidence-based research on resource needs as a starting point for their deliberations. Panelists had access to actual quantities and monetary values where these were found in the research literature. Where the research literature did not address specific resources, panelists formed their own judgments. Panelists were instructed to identify the types and amount of resources (e.g., number of teachers) needed to meet the performance expectations, not to estimate the actual costs of providing those resources. Each panel reached consensus on resource specifications, though not every member would allocate funds strictly according to the specifications. At the time of the meetings, no participant (either panel members or the study team) had a precise idea of the costs of the resources that were being identified. This is not to say that panel members were unaware that higher levels of resources would produce higher base cost figures or weights. Yet, without specific price information and knowledge of how other panels were proceeding, it would have been impossible for any individual or panel to suggest resource levels that would have led to a specific base cost figure or weight, much less a cost that was relatively higher or lower than another.
- **Synthesizing the results of multiple PJ panels.** Each of the school-level and identified learning needs panels, as well as the facilities panel, met with members of the TFP/APA

team for approximately one day each to design initial representative schools and/or program specifications. Subsequent system-level panels reviewed the conclusions of the school-level panels and built in resources for central administration, management, oversight, and support. The Advisory Group then reviewed, reconciled, and finalized the specifications developed by all the other panels.

- Costing out the school-level resources needed to meet the District's public education goals. Based on the consensus achieved by each school-level panel on required resources, the study team developed estimated costs based on current DC wage and price information. School-level cost categories include:
 - *Instructional staff*, including classroom teachers, other resource teachers, media specialists, teacher aides, and substitute teachers;
 - *Student support staff*, including school nurses, psychologists, counselors, social workers, and family liaisons;
 - *Administrative staff*, including principals, assistant principals, deans, technology managers, business managers, registrars, and clerical staff;
 - *Technology*, including hardware, software, local area and wireless networks, and licensing fees;
 - *Other educational resources*, including textbooks, supplies, and other consumables; extra-curricular programs such as sports, music and performing arts, and student-run clubs; and professional development;
 - *Additional programs* to strengthen academic success, including preschool, extended-day and extended-year programs, bridge programs, and college preparation programs; and
 - *Other costs*, including security.

The identified learning needs panels added to the resource specifications developed by the regular school-level panels to address the needs of English language learners and at-risk, adult, alternative, and special education students.

- Costing out the system-level resources needed to meet the District's public education goals. Based on the deliberations of the two system-level panels concerning required resources, the study team developed estimated system costs for DCPS and public charter schools. DCPS cost estimates were based on the DCPS fiscal 2014 budget. Public charter school costs were based on panel specifications of resources for LEAs that serve one or a small number of charter schools. A cost estimate was then developed based on current DC wage and price information. System-level resources include maintaining key capacities related to managing programs at multiple campuses, including:
 - *Strategic planning and management*;
 - *Financial management*;
 - *Procurement*;
 - *Academic programming and support*, including curriculum development, professional development, and resources;
 - *Outreach and coordination of programs and resources for students with identified learning needs*;
 - *Food service* (resources needed above generated revenues);
 - *Youth engagement and support*;

- *Family and public engagement*;
- *Legal support and services*, including risk management;
- *Human resources management*, including personnel policies and procedures, recruitment, hiring, performance review, and recordkeeping; and
- *Data management and accountability*, including student tracking.

Panelists were instructed *not* to build their dream school, but to identify the resources needed to meet DC performance standards, including the Common Core State Standards when they are fully implemented.

In sum, the PJ approach enabled the study team to specify the resources needed for base-level education spending, additional resources for students with identified learning needs, and the resource costs associated with alternative settings. Convening multiple panels offered several significant strengths:

- Convening multiple panels enabled the *separation of school-level resources from system-level resources*.
- Multiple panels focused on *schools at different levels and of different sizes and composition, as well as students with different learning needs*, so the study team could determine whether and to what extent these factors impact school- and system-level costs.
- Each panel’s work was reviewed by at least one other panel, which ensured *broad inclusiveness in the deliberative process* and greater accountability for the final cost estimates.

Incorporation of the Evidence-Based Approach

Although the TFP/APA study team did not undertake an independent analysis of relevant evidence-based research as a component of the DC Education Adequacy Study, the evidence-based approach was an integral part of the PJ approach. Built on the premise that education research has reached certain conclusions on how resources should be deployed in schools to improve student performance, it uses existing educational research to identify strategies that are most likely to produce desired student performance outcomes. Strategies may include class size reductions, interventions for special student populations, summer school, professional development, changes in school-day and school-year scheduling, and supplementary support services for students and their families.

The study team drew heavily on the work of other researchers who are reported in the seminal meta-data research paper by Goetz, Odden, and Picus.⁴ These authors located, read, evaluated, and synthesized the findings from hundreds of studies, reports, and other sources on effective educational strategies and practices. This included research that identified educational programs

⁴ Michael E. Goetz, Allen R. Odden, and Lawrence O. Picus, “Using Available Evidence to Estimate the Cost of Educational Adequacy,” *Education Finance and Policy*, vol. 3, no. 3 (2008): 374–97.

and practices that demonstrate *direct effects* on improving academic performance. It also included research on strategies that may have *indirect effects* on performance, such as behavioral support programs that increase time on task. Although most of the research literature is state-specific, this meta-analysis offered the most relevant evidence base for the DC Education Adequacy Study.

The study team used this information as a starting point for the PJ panels' efforts to develop representative schools at each level (pre-K/elementary school, middle school, and high school) and guide their deliberations on resource requirements for students without and with identified learning needs. To overcome the disadvantages of using the EB approach alone—one being that it speaks only to limited types of resources and treats all situations generically—the study team incorporated the EB approach into the PJ panels' design and work.

Using the Successful Schools Approach

The successful schools approach examined levels of spending in DCPS and public charter schools that were identified as high-performing. The study team:

- *Identified successful schools.* The selection of schools for the SS study was not an attempt to identify a representative sample of all DC schools. Instead, it was an effort to identify schools presently regarded as successful compared with other schools. Both DCPS and the District's Public Charter School Board have created frameworks to assess the overall performance of their schools. Each framework uses indicators to determine the extent to which its schools, and the students enrolled in them, are meeting standards set by the District of Columbia and the federal Elementary and Secondary Education Act. The frameworks' indicators consider academic achievement data and other data, such as graduation rates, re-enrollment rates, and attendance rates. They afford a balanced view of school success, both in terms of student achievement and satisfaction. In consultation with staff from the Office of the Deputy Mayor for Education, DCPS officials, PCSB staff, and other relevant stakeholders, the study team determined characteristics demonstrated by high-performing DCPS and public charter schools. These criteria varied slightly for the two sectors, but generally focused on a combination of:
 - Student academic performance;
 - Student growth over time;
 - Graduation rates;
 - Gateway measures; and
 - Leading indicators.

These characteristics were used to identify schools in each sector that were asked to provide detailed school- and system-level revenue and expenditure data to enable the study team to analyze the current costs of educating students without identified learning needs in high-performing schools. Not all schools that would be considered successful by these criteria participated in the study. (For more details on selection criteria and how they were applied to select DCPS and public charter schools, see Appendix H.)

This approach offered the inherent advantage of focusing the analysis on a selection of schools across the city whose leaders have found ways to successfully educate students to meet performance expectations. It was very helpful in clarifying expenditure levels for students *without* identified learning needs. It did not, however, provide insight into the

costs of serving students with identified learning needs who require specialized instruction, resources, and staff that entail additional costs. Table 2.2 summarizes the key characteristics of schools selected for the SS study. (Appendix I contains a profile of each school in the SS study.)

Table 2.2: Key Characteristics of Schools Selected for the Successful Schools Study

Sector Representation	<ul style="list-style-type: none"> ▪ District of Columbia Public Schools: 16 ▪ Charter Schools: 21
Geographic Distribution	<ul style="list-style-type: none"> ▪ Ward 1: 5 schools (2 Charter, 3 DCPS) ▪ Ward 2: 1 school (Charter) ▪ Ward 3: 6 schools (DCPS) ▪ Ward 4: 9 schools (7 Charter, 2 DCPS) ▪ Ward 5: 3 schools (2 Charter, 1 DCPS) ▪ Ward 6: 3 schools (2 Charter, 1 DCPS) ▪ Ward 7: 6 Schools (3 Charter, 3 DCPS) ▪ Ward 8: 4 Schools (4 Charter)
Grades Served	<ul style="list-style-type: none"> ▪ Pre-K3 to Grade3/Pre-K3 to Grade 5/Pre-K4 to Grade 5: 15 schools ▪ Pre-K3 to Grade 8/Pre-K4 to Grade 8: 4 schools ▪ Grades 4–8/Grades 5–8: 8 schools ▪ Grades 6–8/Grades 6–9: 3 schools ▪ Grades 6–12: 2 schools ▪ Grades 9–11/Grades 9–12: 5 schools
Number of Students Enrolled School enrollment ranges from 200 to more than 1,200, with most of the schools enrolling 250–450 students.	<ul style="list-style-type: none"> ▪ 200–400: 26 schools ▪ 400–600: 7 schools ▪ 600–800: 2 schools ▪ 800–1000: 0 schools ▪ 1,001 and above: 2 schools
Identified Learning Needs	<p>Low Income: In schools across the District, the average rate of low-income students, as measured by eligibility for free and reduced-price school meals, is 71%. Among the identified successful schools, low-income students account for:</p> <ul style="list-style-type: none"> ▪ 45% of the student population in DCPS ▪ 64% of the student population in Public Charter Schools <p>Special Education: DCPA notes that approximately 17% of students receive special education services. Among the identified successful schools, special education students account for:</p> <ul style="list-style-type: none"> ▪ 9% of the student population in DCPS ▪ 12% of the student population in Public Charter Schools <p>English Language Learners: The number of English language learners (ELLs) varies across the identified successful schools:</p> <ul style="list-style-type: none"> ▪ 28 schools have an ELL population that accounts for up to 15% of students. ▪ 7 schools have an ELL population that accounts for 15%–35% of students. ▪ The remaining 2 schools have an ELL population that accounts for 36% and 58% of students, respectively.

Sources: Successful School Study data collection

- *Gathered school-level and system-level expenditure data.* The study team prepared a data collection template to gather detailed income and expenditure data from each of the selected schools for school year (SY) 2011–2012. To the extent possible, charter school LEAs successfully completed the templates to produce school-specific spending data that included system-level costs associated with schools with multiple campuses. As needed, this data was supplemented with PCSB audited information for all charter schools. (PCSB audited information also was used for a few charter schools that did not report complete data.) For the DCPS schools in the sample, the Office of the Chancellor provided revenue and expenditure data for all schools. Total school spending was divided by the number of students in each school to calculate per-student school costs. (Appendix J presents the template and guidance for the collection of school-level and system-level expenditure data for the SS study.)
- *Collected data on supplemental funding and other resources.* Leaders at each of the schools participating in the successful schools study were asked to provide information on additional cash, grants, and in-kind resources available to the school for the benefit of all students and/or for categories of students. This includes, for example, contributions of money, supplies, and volunteer time. It includes supplemental funding for additional academic programs, such as after-school programs, summer school, and/or dual-credit programs with local colleges and universities. Some school leaders were able to provide this information; for others, the task was more challenging. By supplementing the basic information on school revenues with information from the DC Office of Partnerships and Grant Services and the DC Public Education Fund, the study team was able to identify additional sources of revenue available to schools in the successful schools study. With this information, the study team calculated a per-student supplemental spending estimate that was added to the base level of per-student spending on education programs for successful schools. (Appendix J provides a summary of guidance to leaders of successful DCPS and public charter schools participating in the SS study.)
- *Determined a base cost.* To determine the base cost for educating students in high-performing DCPS and public charter schools, the initial study design called for separating expenditures related to serving students with identified learning needs from those related to serving general education students. However, because the identification of these expenditures was inconsistent across sectors and schools, the study team determined that it was preferable to employ a weighted student approach that is often used for SS studies where disaggregating costs for particular students or programs is difficult. Employing this approach, weights were identified for each of the identified learning needs categories and applied to total spending in order to derive a reasonable estimate of the amount of funding that was allocated to students with identified learning needs in the SS study schools.

To generate a base cost for educating students without identified learning needs, the study team divided the total of identified expenditures by the weighted student counts. Importantly, these expenditure totals included all spending by DCPS and public charter schools in the SS study, not just spending that was specific to local UPSFF funding. All

available funding from DC education appropriations, other city agencies, federal programs, and private funds are taken into account in the SS study calculations.

The successful schools approach provided a sound estimate of the amount high-performing DCPS and public charter schools currently spend per general education student.

In sum, the SS approach provided a sound estimate of the amount high-performing DCPS and public charter schools currently spend per student to achieve results for general education students who do not have identified learning needs and, therefore, do not require specialized resources that entail additional costs.

- This estimate provides an *important point of comparison to the estimated costs of required resources identified by the PJ panels and confirms the results of the PJ cost analysis.*
- This component of the study did not address *the costs of serving students with identified learning needs.*
- This approach did not allow for the *separation of school-level resources from system-level resources.*

Comparing Expenditures Within and Outside the UPSFF

In addition to examining cost estimates resulting from the work of the PJ panels and from the SS study, the TFP/APA study team carefully analyzed current education spending within and outside the UPSFF for both DCPS and public charter schools to understand the level of current per-student education spending. Although the formula was intended to cover all instructional and noninstructional costs for educating DC students, both DCPS and public charter schools receive supplemental benefits from other city agencies, though not on an equal per-student basis, including the:

- Department of Health (DOH) for school nurses;
- Department of Behavioral Health (DBH) for social workers;
- Metropolitan Police Department (MPD) for school resource officers; and
- Department of Transportation (DDOT) for school crossing guards.

DCPS receives additional supplemental support from other DC agencies, including the:

- Office of the Attorney General (OAG) for legal support services;
- Office of Contracting and Procurement (OCP), for procurement services;
- Office of the Chief Technology Officer (OCTO) for computer systems, and
- Department of General Services (DGS) for facilities maintenance.

These benefits do not show up as DCPS school-level or system-level expenses, because they are paid directly by the referenced DC government agencies.

In addition to UPSFF funding, public charter schools also receive an annual \$3,000 per-student facilities allowance. These funds are intended to cover capital investments and lease obligations. However, public charter schools have wide discretion in how they allocate these nonlapsing funds.

Differences in how the two systems are funded and what funds cover each expenditure category complicate efforts to compute and compare costs between DCPS and public charter schools. They also complicate efforts to develop a reasonable, standard, data-based estimate of the costs of providing an adequate education to all DC students.

To address these complexities, the study team designated all expenditures for DCPS and public charter schools by whether they were covered within or outside the UPSFF. The team also assessed whether the expenditures were covered at the school level or the system level. For public charter schools, this analysis included the facilities allowance. For both systems, the study team identified funding from other public sources, including federal program funds and supplemental appropriations, to take full account of all relevant sources of revenue and all relevant expenditures in order to determine current per-student spending and compare it with calculations on the required base and weights for spending to ensure all students can receive an adequate education.

Blending Results Based on Multiple Methods

To develop sound data-driven cost estimates for the full range of costs associated with providing an adequate education, the study team conducted a comprehensive analysis of data and information from multiple sources, using multiple analytic methods. The study design was created to measure adequacy as it is reflected in three fundamental cost components:

- *A base cost per pupil common to all schools*—the parameter that can be used to establish the foundation per-student aid amount that is distributed under the District’s UPSFF;
- *Adjustments to the base cost to reflect the cost pressures associated with different students, different education programs, or different characteristics of schools reflected in the weights;* and
- *Adjustments to the base cost to reflect cost pressures associated with maintenance and operations, including utilities and custodial services for school facilities.*

Data and information were gathered, aggregated, analyzed, and synthesized, with significant input from the Advisory Group, to develop sound cost estimates for providing an adequate education to all DC students. In some cases, this required reconciling differences in the results produced using different research methods to present a single reasonable cost figure. Of particular note:

- The new Common Core State Standards are just now being implemented nationwide, so no reliable past experience exists to help set student performance benchmarks aligned with the new approach. The SS study contributed important insights into how successful schools can help boost student performance based on current standards, but it could not shed light on the resource needs and related costs for meeting the new standards. Accordingly, the PJ panels played an important role in helping the study team anticipate

modifications and enhancements in educational programs, services, assessments, and other resources that will be required and the related costs.

- Developing specifications for students with identified learning needs is challenging, because it is difficult to distinguish the base level of resources needed by all students from additional resources needed only by students with specific categories of identified learning needs.

In addition, the study team started with identifying students at-risk of academic failure using eligibility for free and reduced-price school meals. The study team recognized the need to identify additional relevant low-income proxies because of the complication the community eligibility option⁵ introduces in identifying students qualifying for these subsidized meals. The study team also recognized that a direct correlation between poverty and educational risk does not exist but it decided to rely on low-income proxies until the Office of the State Superintendent of Education fully develops and implements an early warning system for identifying students at risk of academic failure. In the short term, the study team determined that being in foster care, being homeless, and living in a family that is TANF-eligible were reasonable factors identifying at-risk students.

- The specifications from the PJ panels, with some adjustments based on research evidence and other data analyses, became the driving force for the recommended new base level of UPSFF funding and the additional weights.
- The SS results provided an important point of comparison for determining the base level of UPSFF funding and validated the findings of the PJ panels.

Employing multiple analytic methods enabled the study team to gain a broad perspective on diverse factors that affect education costs and cost differences between DCPS and public charter schools. It also afforded insights into possible strategies for reconciling differences to achieve adequacy, equity, and transparency in DC education funding. To the extent the conclusions of the PJ panels track closely to the findings in the existing educational research literature and are reinforced by the SS study, DC policymakers who are faced with competing priorities and limited budgets can have significant confidence in the study results.

⁵ The Office of the State Superintendent of Education defines schools as eligible to participate in the community eligibility option based on whether they have 40 percent or more of identified students who are direct certified for Temporary Assistance for Needy Families or Supplemental Nutrition Assistance, are homeless, or are in foster care, according to data reported in the District of Columbia's Direct Certification System, by the state agency homeless coordinator, and/or by the department of child and family services as of April 1st of each year.