Assessment of Delaware Public School Funding

Technical Appendix

Drew Atchison, Jesse Levin, Sana Fatima, Amy Trauth, Ajay Srikanth, Colleen Heberle, Nora Gannon-Slater, Kevin Junk, Laura Wallace

American Institutes for Research

Bruce Baker

University of Miami

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Contents

Exhibits

Appendix A. Delaware District and Charter School Leaders' Perceptions of Education Funding

Introduction

In order to understand education leaders' perspectives of Delaware's current funding system, AIR conducted interviews with district and charter school leaders, which included superintendents, chief financial officers, and heads of school. AIR reached out to the leaders of all school districts and charter schools in the state to invite them to participate in this portion of the study. Representatives from all 19 districts as well as 18 charter schools agreed to participate in the interviews, resulting in our speaking with 61 total education leaders in Delaware. Through the interviews, AIR was able to collect rich qualitative data on their perceptions of strengths and weaknesses of the current education funding system. These perceptions are distilled into themes outlined in the findings of this report. District and charter school leaders shared their views of the constraints and flexibility in raising revenue, their ability to use available funding to meet the needs of students in their communities, and the overall transparency of the current funding system. In addition, school leaders were probed about service arrangements between district and charter schools to better understand the extent to which districts and charter schools collaborate to provide services to students, as this might influence the reporting of spending in both districts and charter schools.[1]

Key Interview Constructs

During the course of the interviews with district and charter school leaders, we asked questions related to the following key constructs:

Key Interview Constructs
Adequacy and transparency of current education funding
• Advantages and disadvantages of the current education funding system • Ability to understand education funding system and communicate about it to stakeholders

[1] In our prior work, we have found that it is important to check for service arrangements between charter schools and school districts. Charter schools can operate in very different ways from state to state. In Maryland, for example, all charter schools are authorized by school districts. In a prior study conducted in Maryland (Levin et al., 2016), we found that some school districts in Maryland manage certain services for charter schools centrally, often including the provision of special education services and student transportation. In those cases, the expenditures for those services were recorded as district expenses even though the services were provided for charter schools. As a result, it was necessary to assign a portion of the transportation and special education expenses of districts to charter schools. In Delaware, charter schools operate independently of school districts.

Key Interview Constructs
Equity of current education funding
• Extent to which the current system sufficiently differentiates funding based on the needs of diverse students • Equity in the provision of state funding across districts with varied capacity to raise revenue
Expenditures
• Factors that determine intra-district resource allocation • Resources provided at district level versus school level • Use of local revenue to supplement units allocated by state • Significant changes to funding in the last 3 years, including the impact of COVID-19 on district finances
Raising local revenue
• Constraints and flexibility in raising local revenue for operating expenses and capital improvement • Anticipated impact of property tax reassessment
Relationships between districts and charter schools
• Impact of charter schools on district finances • District policies that affect provision of local funds to charter schools • Service agreements between districts and charter schools • Funding sources only available to districts or charter schools

Recruitment

To introduce the study to Delaware's district and charter school leaders, members of the AIR project leadership team joined several monthly virtual check-in meetings between the Delaware Department of Education and district and charter school leaders. During those virtual meetings, we let Delaware's education leaders know that we would be conducting interviews and that we would be emailing them about scheduling and conducting the interviews. Initial email interview requests were sent to all district superintendents and charter school leaders as well as the chief financial officers of all districts and charter schools in October 2022. This was followed by up to four additional contact attempts between October and December for districts and charter schools that were not responsive to our outreach. In response to the interview request, district and charter school leaders indicated who would represent their local education agency (LEA) during the interview and scheduled the interview time. Confirmations with Zoom meeting links were sent by AIR to the LEA designees.

Interviews were conducted virtually from October through December 2022. During each interview, one or two members of the AIR team facilitated the interview and took notes. Interviews were approximately 60 minutes long and digitally recorded.

Methodology

The AIR study interview team analyzed interviews in three phases: (1) initial transcription, (2) categorical coding, and (3) thematic analysis. Digital interview files were transcribed verbatim into text using a secure transcription service. Based on the interview questions, the interview team generated an initial set of categorical codes to ground preliminary coding. All three members of the interview team individually conducted preliminary coding of the same two interviews in NVivo software. The team then met to discuss initial codes and refine and expand them based on this preliminary analysis. Inter-rater reliability was computed using Cohen's Kappa; the preliminary round of coding indicated very high agreement (k = 0.85). Once inter-rater reliability was established, the rest of the interview transcripts were coded in NVivo. When categorical coding was complete, the analytic team met to discuss categorical coding and their initial impressions about emergent themes. Each member of the team then completed a portion of the thematic analysis by grouping categorical codes and their associated data into related themes. These themes were distilled into the key findings, which are outlined below.

The purpose of this analysis is to understand and report the perceptions of district and charter school leaders surrounding a variety of issues related to Delaware's current school finance system. Therefore, we are simply providing a synthesis of the information provided by these leaders; we did not verify the accuracy of their statements. The findings herein should be interpreted accordingly as perceptions and not necessarily as factual.

Adequacy and Transparency of Current Education Funding

Overall, when probed about the adequacy of the current system of education funding, district administrators and charter school leaders generally agreed that the unit system was a stable and reliable method for determining the number of staff they can employ in any academic year. They also noted that a strength of the current funding system was the high proportion of funds allocated from the state budget for staffing units, which relieved some pressure on them for raising local revenue for teacher and school service staff compensation. Despite noting this strength in the current education funding system, several district administrators noted the disparity among districts in their ability to raise local revenue through referendums due to stark differences in property valuations across the state. This disparity was often described in terms of the "value of a penny" of property taxes in one district versus another.

In terms of the transparency of the current system of education funding, most district administrators and charter school leaders agreed that the allocation of staffing units based on total student enrollment was generally comprehensible to stakeholders. Less comprehensible from their point of view were the different sources and amounts of state funding allocated both within the unit system (e.g., additional units for students with disabilities) and outside the unit system (e.g., Opportunity Funding, and safety and security funding), making it difficult to

explain to stakeholders how the current system operates and where it falls short in terms of meeting the needs of districts and schools. According to interviewees, the inability to clearly characterize district funding in a straightforward way creates hurdles for district administrators when attempting to justify to local residents increasing property taxes through referendums. These themes are described in more detail below.

Theme 1. The unit system provides a reliable and stable foundation for districts and charter schools to predict the number of staff funded by state dollars from one year to the next.

Twelve district administrators and five charter school leaders described the unit system as dependable and consistent for projecting the funds available in any particular academic year. Five district administrators explicitly pointed out the predictability of the system as its greatest asset. Comparing Delaware's funding system to other states such as Maryland, which allocate dollars to districts rather than units of staff, several noted that the guarantee of unit funding by the state meant they received a predictable number of staff positions that was not dependent on actual levels of pay for staff. This meant they could hire the most qualified staff without concern for additional costs associated with education level or years of experience. In states where dollars are allocated rather than staff positions, the hiring of more experienced and expensive staff may result in fewer staff positions.

Eleven district administrators and three charter school leaders indicated that additional units for special education within the unit system added to the dependability, as it allocates additional resources based on the differential needs of students with disabilities. Despite the dependability of receiving additional staff for special education, 11 interviewees noted that the resources for special education are currently insufficient for meeting the needs of those with the most intense and complex disabilities.

I think the formula right now, the advantage of it is, it provides a lot of stability in terms of what we can expect going into next year. We know what the ratios are, … we know pretty much how many positions we'll probably end up getting. There's always some tweaking that can go on with the system in terms of, we need to adjust these ratios or those ratios based on as kids enter … for this or that or whatever. But it's a fairly reliable foundation that allows us to plan and get a good bead on fiscally what we can project going into the next year to make sure we're meeting the needs of the kids.

– District superintendent

The reason that I find the [unit system] very helpful and reliable from a budgeting and consistency standpoint is that you don't have to worry about fitting a certain number of positions into a certain pot of money. You know that "Okay, if I've earned a unit, whoever I put into that unit is going to get 60 to 70% of their overall cost of their position covered by the state, by virtue of having it funded as a unit." That gives everybody a lot more reliability in terms of, we don't need to [lay off] a ton of teachers every year on the chance that the funding might not come through or that there's a big shift in educational experience [of teachers].
– District administrator

[For] some of the [special education] ratios, we see with the way the formula is structured right now, one of the disadvantages is that we can't meet with the current ratios as they exist. We can't meet the needs of a special ed kid. If there's a kid that comes into our district that requires a one-on-one para, the law requires us to service that kid with a one-on-one para. The funding does not meet our ability to do that. Adjustments like that could be made to make sure that we're actually doing what the law is requiring us to do in terms of helping kids.
– District administrator

Although the unit system was largely described as a reliable, consistent source of funding, district and school leaders indicated that certain types of staffing positions (e.g., IT support staff and administrative positions such as data analysts and curriculum and assessment directors) are not currently part of the unit system, though they are essential for effective day-to-day operations. Administrators interviewed for this study reported that this constraint forced them to use secretarial and custodial units to fund these positions, but lamented that this trade-off reduced the number of staff in related service positions. District leaders are able to "trade in" certain units to fund other positions. Because IT support staff and other support staff often cost more than secretaries and custodians, they often have to trade more than one secretary/custodian unit to secure an additional support position that is not currently part of the unit system.

The unit count funding doesn't provide for any [IT support staff] ... What it provides for is units for teachers, units for supervisors, directors, custodians, clerical staff. Every time we want to bring in more IT people to support all the technology that's going on, we have to rob custodial units or clerical units to do that. Every time we want to pull people to handle accounting, or payroll functions, or HR functions, or data analytical functions in curriculum, we have to pull clerical or custodial units out of the mix to be able to fund those types of things.
– District administrator

Noting recent state appropriations for education funding, several administrators described these additional funding sources (e.g., Opportunity Funding, safety and security funding) as piecemeal add-ons outside of the unit system that are rigid and inflexible, with separate reporting requirements that create an administrative burden. These add-ons to the base unit system often depend on certain requirements for eligibility, making them less dependable and predictable from year to year and making long-term planning and strategic use of those funds more difficult.

Because we've gotten some additional funding in the recent past—Opportunity Funds have come on, some other pots of money have become available to us—but because they're outside of the unit system, they don't have that same consistency. They're tied to very severe eligibility requirements, either at 50% you don't get it, at 51% or 50.2% you get it. And it's an all-or-nothing qualification, which is difficult.
– District administrator

Opportunity Funds help out with some of our neediest students, but the state's been "piecemealing" things ... Mental health is a huge deal, but it's only funded through the middle school level. High schools have just as many, if not more, mental health problems, but nothing gets addressed at the high school level, aside from [Career and Technical Education]. Everything seems to be focused on the elementary and middle levels. … This is all they can allocate for things like the Opportunity Funding for low-income students to make sure everybody gets a piece of the pie. We build it outside of the unit count system, and it creates these bolt-ons, if you will, of funding that don't drive those ancillary support positions, and that becomes problematic.

– District administrator

Theme 2. District administrators and charter school leaders cited the high percentage of funding allocated by the state (as opposed to local sources) as a strength of the current funding system. However, disparities in the ability of districts to raise local revenue was a focus of concern for several administrators.

Five district administrators and two charter school leaders described the high percentage of funds allocated by the state as a strength of the current education funding system. Several administrators compared the amount of state funding for staffing to nearby states like Maryland and New Jersey, noting that Delaware districts were not expected to raise as high a percentage from local funds for staff compensation. Nonetheless, eight district administrators explicitly noted the disparity in the ability of their districts (and others) to raise local revenue through increases in property taxes during referendums. Noting the stark variations in property valuation in different areas of the state, these administrators described an inability to raise needed revenue to account for increasing operational costs.

The state funding of units, they pick up the bulk of the expenses associated with staff. I think that's absolutely an advantage. The fact that our Division I units, I think they fund over 70% of the person's salary and then districts pick up the other share on the local side. That's not the case in other states.

– District administrator

I do think knowing we have 70% coming from the state and we only have to come up with 30% in the case of a unit, I think that does give you a little bit more, I guess, comfort in some ways.

– District administrator

One penny of taxes for us in [our district] generates just over $6,100. If you're in the [wealthier district], for example, that same penny, one penny, generates over $145,000. The value of our pennies are not the same. Where it's very, very inequitable is, if we're going to go build a new school, and it costs $80 million, that holds the same number of students. That's 1,000 kids or 1,400 kids whatever. Our taxpayers are going to have a significant increase in their taxes; far more than taxpayers in [the wealthier district]. ... Not only does it affect facilities and operations, it affects instruction, because I can't recruit the very small pool of qualified, certified teachers that are available because I can't offer a competitive salary, and I'm talking about in the state of Delaware. I can't compete even in Sussex County, let alone neighboring states who have a much higher base salary from the state.

– District superintendent

[Wealthier district] had twice the number of kids. ... If they raised the tax rate a penny, they'd earn about another $330,000. Whereas, when I was at [less wealthy district], when we raised a penny, we'd raise about $100,000. Even though [wealthier district] had twice the number of kids, they're raising three times the amount of money on a single penny.

– District administrator

Theme 3. District administrators and charter school leaders perceive the unit system as generally transparent to stakeholders, but details on the various sources of funding and restrictions on their use are more opaque. Interviewees also indicated that most stakeholders do not understand the differences in funding allocation and use between districts and charter schools.

The majority of interviewees indicated that the relationship between student enrollment and number of allocated units is readily comprehensible to most stakeholders, including finance directors, school administrators and staff, and the general public. On the other hand, interviewees were less confident that stakeholders other than finance directors understood the additional components of the educational funding system. Several administrators noted that most stakeholders do not have a comprehensive understanding of the various components of the state's education funding system. Some examples of difficult-to-understand funding sources cited by administrators were equalization funding, Opportunity Funding, academic excellence funding, additional units for special education, and major and minor capital

improvement funding. For many district administrators, this results in hardship when planning for and communicating with the public about referendums for necessary operating expenses or capital improvement projects.

[Units] are very transparent, so if I earn 10 teachers at the pre-K level, you can go see my enrollment and the ratio that they've established to give me those 10 units. That funding is the same across all the districts.
– District administrator

There's a lot of different buckets for a lot of different things, so there's some added work to keep everything straight. I've made jokes that you get a pot of money, and this pot of money is only for people who wear orange shirts on Tuesdays, and then this other pot of money is only for people who wear polka dots on Fridays. It's a lot of logistics to make sure that you're using the funds for what they're for and you're not crossing over anything. To a certain extent, I understand why they're given that way, but then I also think it makes things a lot more difficult. There's a lot more reconciling that has to be done.
– District administrator

I think the challenge is, there's so many different components to our unit count system. When you're looking at additional [funds], whether that would be through Opportunity Funds or other kind of weighted funding that's been allocated, equalization, to explain that to people is ... I mean, it's tough. I think sitting down with someone to just simply say, "Yeah, go out and vote to have your taxes raised, because this is where your tax dollars are going." As simple as it may sound, it's difficult in practice to be able to, because there are so many different layers to explain Division I, II, III sources of revenue …
– District superintendent

When you start talking about special education and what is an [English learner] student, immediately you've lost 90% of the people. It's just the ability to communicate it and have people understand it. If they don't understand 90% of it, why would they vote for it? The voting process that invites that anger and that resentment towards the funding system, it all goes back to that referendum. … It's because you have to explain it to every resident in your district.
– District administrator

Others cited a lack of public awareness about the differences in the way districts and charter schools are funded, and the ways charters can use funding that districts cannot. This theme is described in more detail in the section below, *Relationships Between District and Charter Schools*.

You know how we are spending our money. You know what you gave us and why you gave it to us, and we can show you how we spent it. The charter schools cannot do that and don't do that. The issue is really transparency alone with [charter schools]. We receive a lot of … different types of money that go into our per pupil expenditure. But then we give it to [charter schools] and they can spend the money however they like.

– District administrator

Our concern … is that the districts are held to a higher level of accountability and transparency—and we take that very seriously—where the charter schools don't have those same type of requirements. What I mean by that is, we go out to do what we call a match tax for something, and we have to spend it on those things [that the match tax was levied for]. But the formulas and the way it's set up for charter schools is that the districts get charged whatever their rate is that we're getting charged and we give it to them. They can do whatever they want. If we had to raise money that was to support a high school reading specialist, when we send that money over to them, they don't have to use it to spend it on a high school reading specialist. They can do whatever they want and there's no accountability on how they spend it.

– District administrator

Equity in Current Education Funding

Overall, both district and charter officials agreed that the additional units for students with disabilities are a necessary and rational component of equity in educational funding. In other words, administrators agreed that students with intense and complex disabilities have greater educational needs, and thus require more resources to adequately educate than basic special education students. Seven districts and four charter schools indicated that the cost of educating special education students is rising and the current funding formula does not meet those rising costs. Five district administrators suggested that additional special education classifications are necessary. For instance, providing higher weighted funding for students in the earliest grades

(K-3) and for a growing number of students with autism would support the ability of schools to meet those students' learning needs.

There was perceived inequity in the way special education funding was used in districts versus charter schools. Six district administrators noted that charters have more flexibility in how to use special education funding than their district does. Five charter administrators indicated that their schools do not receive an equitable share of per-pupil special education funding from sending districts, particularly because districts can exclude funds for special needs students through tuition tax.[2]

While districts and charters nearly unanimously agreed that additional funding was needed for meeting the needs of English learners and students from low socioeconomic status (SES) backgrounds, they also indicated that the total amount of Opportunity Funding currently available was insufficient, and metrics used to qualify for Opportunity Funding were inadequate. The grant-based, restricted nature of Opportunity Funding,[3] coupled with the limited funds available, made it difficult for districts to respond to the needs of English learner (EL) and low-SES students flexibly and efficiently. Eight districts and two charters explicitly stated that the levels of Opportunity Funding allocated does not compensate for the amount of discretionary funds returned in the annual state give-back.[4] Nearly every district and charter in this study indicated that Opportunity Funding should be made a permanent part of unit-based funding, providing units on the basis of enrollment like special education funding. Doing so would contribute to equity in the funding system.

Districts overwhelmingly agreed that in order to promote equity, equalization funding was also a necessary component of the state's education funding formula. Eight districts explicitly indicated that they relied on equalization funding to bridge the gap in their ability to raise revenue. Nonetheless, 12 district administrators indicated the current equalization funding formula was outdated and required a reassessment so that the amount of funding received by each district reflected actual property values. These themes are described further below.

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[2] Districts can raise a tuition tax without referendum for specific purposes (e.g., hire an aide for a complex student) and then exclude those dollars from the local cost payments to charters each year. Because districts have to use those dollars for those specific purposes, whereas charters are not accountable to local spending restrictions, charter schools do not get those dollars.

[3] Opportunity Funding is divided into two pots. A smaller pot is distributed to schools with high percentages of low-income or English learner students and is to be used for mental health services or reading supports. A larger pot is distributed on the basis of the number of low-income or EL students a school has. Although this pot can be used more flexibly, districts and charter schools must submit expenditure plans to the Department of Education describing how they will use the money to improve performance outcomes of low-income and EL students.

[4] Beginning in fiscal year (FY) 2018, districts were expected to reduce their operating expenses proportionally based on their Division I unit count. The total statewide reduction in operating expenses across districts was $26 million. This budget reduction has remained in place from FY2018 (Delaware House Substitute 1 for House Bill 275, Section 368) through FY2024 (Delaware House Bill 195, Section 355).

Theme 1. Opportunity Funding is an essential part of education funding for supporting the needs of English learners and those from low-SES backgrounds. However, district and charter school leaders perceive it as insufficient as currently formulated for supporting high-needs students.

Mental health counselors, behavioral health coordinators, and EL teachers and specialists were the staff types mentioned most often as being hired through the use of Opportunity Funding. Although district and charter officials agreed that additional funding for English learners and students from low-SES backgrounds was necessary, they also indicated that the nature and amount of Opportunity Funding was inadequate for meeting those students' needs. The grant-based nature was a sticking point for many school leaders. Specifically, they perceived that a limited pool of funds allocated annually results in competition among LEAs and an inability to plan for the long-term maintenance of resources, including staff, dedicated to meeting the needs of these student populations. More than half of the district administrators interviewed for the study stated that funding for low-SES students and ELs should be made a permanent part of the unit system. Ten district administrators suggested that this funding should be a unit-generating category like special education so that district and school administrators can incorporate these funds into their annual staffing formulas. Comparing the restricted nature of Opportunity Funding to general operating funds, administrators reported that the amount of Opportunity Funding is less than or equal to the funds they return to the state during the annual state give-back.

I think if we could convince all stakeholders that if you want to solve a problem within the public education space, you should be doing it within the structure of the unit count system, because that's how to embed it, that's how to solve it permanently. That's how to make it sustainable from an educational perspective. I know it makes it harder on the state budget side, because adding units in, those are entitlements and they do crowd other things out, which I know is one of the big challenges, but … if moving the needle for education is the goal, then putting it in the unit count system is—that is the signal to the education space in Delaware that this is something serious, that we want this taken seriously and we're going to embed it into the base funding that you are entitled to as a district.

– District administrator

We appreciate the Opportunity [Funding], but … 19 districts gave back $26 million in funding a few years back. And there's never been any conversation about getting their money back. And if you look at some of the funding formulas, a lot of people are getting back in Opportunity Funding what they lost on their $26 million state reduction give-back. So, it's like a wash almost. Plus, you've got the restrictions of having to do another grant, and keeping data on those positions, those specific positions you have to hire with the Opportunity Fund. I think we can do better. I think we can have a unit count that is weighted in addition to the Opportunity [Funding].
– District superintendent

Opportunity Funding that's for the low-income and ELL students, I mean, from a practical standpoint, it's new in the last couple years. I think we might get $55,000. I'm not sure what I'm supposed to do with $55,000 to help.
– Charter school leader

Theme 2. School leaders agreed that the additional units for special education are a rational component of education funding. Many indicated that the funding formula should be reevaluated to ensure the sustainability of staff and resources for meeting the needs of special educations students, which are increasing in both quantity and complexity.

Eleven district and charter school leaders described increasing costs of educating special education students. Several administrators explained the needs of students with intense and complex disabilities—special settings, equipment, and highly trained staff that require substantial amounts of financial resources, which they are required to shoulder regardless of the amount of money they receive from the state. They suggested that the special education funding be reevaluated to ensure that the additional units for special education reflect the current needs of students, especially those with the most complex disabilities.

We have more students now being identified on the autism spectrum. And the needs that these kids have are so incredibly unique and they differ from kid to kid. It's not a blanket [solution] like, I could do this lesson, and everybody learns. There are so many different things that come along with that. We're having to figure out how to purchase adaptive playground equipment. We have students in wheelchairs, we have students that require nursing support with feeding tubes. We have babies at our kindergarten and pre-K center that require diaper changes. These are things that public schools didn't have before.
– District administrator

I think they might need a few more classifications … but I think there could be more tiers, and then that would come with additional resources. They do fund the students that have significant needs that need to have special placement, a significant portion of those costs as well. But we have to cover the costs associated with all children. I do know from a counterpart that in other districts, when the board says, "No, you're not raising your tuition tax," that means they have to look to their general operations to support the additional needs. That's a burden on operations.
– District superintendent

Theme 3. Equalization funding is perceived as an essential component of education funding by LEAs; however, many described the current equalization funding formula as "broken," "flawed," or "outdated."

There was overwhelming consensus that the current equalization formula needed to be re-evaluated to reflect current property values and each district's resulting ability to raise revenue. However, there was concern about revising the current equalization formula. Districts understood that if revised, some districts would receive more equalization funds and some districts would receive less than they currently do, resulting in "winners" and "losers."

There's this idea of equalization, and so you have to stay true to it, and it hasn't stayed true. [We] have this equalization formula that's been frozen and it's not reflecting the differences and reassessments. We have tax bases that are based on 1983 property values.
– District administrator

We're not able to pay our teachers as hefty a salary as other districts who have a better source [of local revenue]. The real estate property values are much higher, they have more property in their district that they can tax. So, we're at a disadvantage. We're also in an economically depressed area, in addition to that. You mentioned the equalization formula; that's been frozen since 2009. It's outdated; it's not functioning correctly. So that's where, when you want to talk about equity and funding, I mean, that's the heart of it right there—there is no equity in the funding anymore.
– District administrator

The formula that exists now, which is broken and has been frozen for several years, calls us one of the richer districts out there. So, yeah, the state needs to do a better job of distributing that … they talk about winners and losers and if somebody goes up, somebody has to go down, as if this equalization thing is a finite pot of money. … It needs to be, if somebody needs more money, then you need to increase the pot. You don't have to always have winners and losers.
– District administrator

How Districts and Charter Schools Spend Their Funds and Flexibility of Use

Both district and charter leaders reported personnel and transportation as the two largest expenditures supported by local funding. To keep down costs and increase efficiency in service provision, districts commonly centralize staffing, purchasing of equipment and instructional materials, facilities maintenance and operations, transportation, nutritional services, and IT support. School administrators reported that school budgets are determined primarily by the number of students served in each building, with some adjustments based on students' needs (i.e., special education, English learners, low SES). A chief concern intimated by many district administrators was the lack of allocation of technology personnel in the state's unit funding system. Interviewees in 9 districts described diverse ways in which they allocate funds for instructional technology personnel, all of which reduce funding for personnel in other areas related to instruction or related school services. Seven districts and 10 charters indicated that ongoing teacher shortages currently make it difficult to fully staff schools. Five districts noted that although they often have remaining state funds in their budgets for hiring instructional staff, they are forced to leave that money on the table because they cannot afford the local share of those salaries.

Citing multiple sources of funding, with various spending foci and substantial reporting requirements, districts and charters indicated the current patchwork of state budget expenditures dedicated to education was overly restrictive in use, unduly burdensome in reporting, and yet still inadequate for meeting the needs of an increasingly diverse student population. Fifteen districts and four charters described these various education funding sources as separate "buckets," "pockets," or "pots" of money that resided outside the current unit system. These separate sources, including Opportunity Funding, safety and security funds, and student mental health funds were described as sources of money necessary for effective schooling but inflexible in the ways in which districts and schools could use them to meet the needs of students in their communities. Moreover, districts and charters indicated that small appropriations that are not permanent or are external to the unit system pose difficulty in long-term planning and programmatic decision making.

Interviewees in both districts and charters described ESSER funding as critical to responding to the effects of COVID-19 on students, teachers, and schools. Seven districts and three charters indicated ESSER funds were used to provide instructional technology to teachers and students during remote or hybrid learning. A similar number reported using ESSER funds to address learning loss and the post-COVID social and emotional needs of students. Eight districts reported using some ESSER funds to complete minor capital improvement projects such as replacing school building HVAC systems and roofs—in many cases, these minor capital improvement projects were critical repairs to infrastructure that districts could simply not afford otherwise. Concerns loom about how to continue instructional services and address deferred maintenance issues once ESSER funding ends. These themes are explored further in this section.

Theme 1. Both district and charter leaders reported personnel and transportation as their two largest budget expenditures of local funds.

Centralized services from the district office allow more efficient and cost-effective provision of goods and services to individual schools. Administrators reported human resources, transportation, nutrition, instructional technology and personnel support, and curriculum resources and instructional specialists as the most common district-level resource allocations. Notably, five southern districts related the difficulty of fully capitalizing on the state funds they receive because they often cannot afford the local portion of salaries to hire personnel.

We budget at the district level for all the operation stuff. It doesn't make sense for a principal to have to figure out how much they're going to spend on electricity. We do that in the central office. Transportation's the same way.
– District administrator

We leave units and positions on the table because we cannot afford the local share. We just can't fill these positions. Would we love to have an extra counselor or another mental health person? Yeah, but we literally cannot afford the local share. If there's a way to figure out that it could be picked up by the state more, I'm not asking for the world here, I don't think, but the reality is we leave units there.
– District superintendent

Theme 2. The current system is seen as a patchwork of different appropriations that poses barriers to long-term strategic planning and flexible use of funds. There is an urgent need for a coherent, unified, and flexible funding system.

While recent state budget appropriations were essential in addressing emerging education-related issues such as school safety, student mental health, and the needs of EL students and students from low-SES backgrounds, restrictions on uses of funds and substantial reporting requirements were cited as challenges in their use. Hiring staff using appropriations outside the unit system was described by three administrators as problematic due to annual increases in compensation costs. Seven district administrators explicitly indicated that the unit count formula needed modernization to account changing needs over time. Rather than separate sources of funding, districts administrators requested a coherent, unified system for education funding that would maximize flexibility to best meet the needs of students in their communities.

Opportunity funds have two different buckets with two different qualification factors. One is for reading and mental health, and then the other one is what we all call the flexible pot. And those—they can't be commingled, and they have different qualifications. The more buckets get added outside of the unit count, the harder it gets to make everything work in terms of, like, "Okay, you've got to know what all these rules are, you've got to have everything captured somewhere in a system." And it just creates a lot of administrative time and energy to keep track of it all.
– District administrator

And that's the thing, because when you talk about flexibility, if you want to fix this and provide flexibility, one of the answers has to be, the legislature has to stop passing bills that set up funding sources that can only be spent on three things. That's why we are where we are—because we've got all these little pockets of money. Safety and security money, minor [capital], technology. There is no flexibility on those little sources [of funding].
– District administrator

The biggest problem we have is these extra funding streams that are added on after the fact, like the Opportunity Funding. One, they're very restrictive in nature. Two, they do not generate ancillary positions. And three, oftentimes for things like English language learners, low- to moderate-income students, the value is driven simply off what's left of the piece of the pie in the budget. Those students require more funding than the traditional student, and without having a unit built in for them at a value like [special education]. We have these bolt-on funds that were based off a pot of funding that was left when we developed a budget, split across 19 districts and many charter schools.
– District administrator

Theme 3. When describing their ability to spend flexibly to meet the needs of students in their district, administrators commonly cited as a shortcoming in the current unit count system the lack of appropriation for IT personnel, whom they perceive as critical to quality contemporary instruction.

Administrators described various ways of using budget allocations to fund IT staff positions—including using academic excellence units and converting clerical or custodial units into IT staff positions. Districts overwhelmingly agreed that IT staff should be included as part of the state unit count funding formula.

Our IT personnel are paid from our custodial units. That's taken away from the care of our buildings in order to have IT personnel. While we need teachers and all that, we also need units for care and maintenance of buildings, IT, security. There are other things that go into running a school … I think they should be separate. The unit count, you earn so many different positions. I think that [IT personnel] should earn their own line item … for however many students, that we earn so many IT personnel. And we earn so many security personnel. Just like, so many students, we earn so many nurses. It should be the same thinking that goes into that.

– District administrator

We have our academic excellence units … but I think there are 20 ways we could spend [those] units and still not meet all of our needs. I think that's what's not understood. Most of us have given up librarians because we need to use the units for IT, and mental health, and extra school counselors, and school psychologists, and OT, and PT, and all of that … not directly funded through the unit count.

– District administrator

Theme 4. Districts and charters indicated that ESSER funds were critical to responding to the effects of COVID-19 on teaching and learning.

Districts and charters reported that they used ESSER funds primarily for the following purposes: to purchase instructional technology (e.g., Chromebooks for students, SMART Boards for classrooms), to mitigate learning loss and promote mental health (e.g., tutoring programs, reading and math remediation, social-emotional programs), and to make improvements to school buildings (e.g., replace HVAC systems and building roofs). There is substantial concern about how districts and charters will maintain programming started with ESSER funds that require sustained investment, and how they will address significant, ongoing deferred maintenance issues for aging school buildings.

ESSER funding was helpful, and we welcome always the influx of funds to be able to utilize for services for kids and things that we've purchased. I find the ESSER funding quite concerning… because it's not permanent and it's a large sum of money that's going away. We have people and things in place that we'd like to continue that we're going to have to figure out how to sustain. We're seeing really good outcomes from things like reading tutors in our schools and after-school programs. And these are all things that we couldn't necessarily afford on our own before. My heart sinks when I think about 2024 and how we're going to continue to do them after that money's gone.

– District administrator

The ESSER funding allowed us to do some HVAC projects that we weren't going to be able to do. I've got an old school that doesn't have central air. We put in a new boiler, and we put in air conditioning in two main areas, the cafeteria and the auditorium. It was about $3.2 million just for one school. I never could have done that without a referendum. That was huge for us. We're looking at another school right now, which we're worried … it's going to be much more than that. We're not going to have the ESSER money to do that.

– District superintendent

How do we sustain the additional mental health counselor? How do we sustain the additional supports for our kids that we put in place through [ESSER] once this funding's gone? That's going to be difficult. We're going to have to make some really difficult choices about what we give up and what we hold onto. I don't see the mental health needs [of students] healing as quickly as physical needs.

– District administrator

Raising Local Revenue

District administrators were clear that—with few exceptions, like leveraging a tuition tax--going through the referendum process was the only available means to raise local revenue. Increasing funding for day-to-day operations and raising funds for major capital improvement projects were the two reasons that districts undertook referendums. Described as a highly political and resource-intensive process, administrators in 12 districts described concerns about their ability to garner enough community support to pass referendums on a regular basis. They defined the referendum process as inordinately intensive: substantial amounts of time,

financial resources, and human capital are used to raise public awareness and gather momentum for voter turnout, all of which are expended in a process that is as likely to result in failure as success. Moreover, district administrators explained that referendums that pass provide enough local revenues to address budgeting needs for only a few years. District administrators reported that when undertaking a referendum, they ask for what they think they can pass with voters, not an actual or projected increase to keep pace with current operating and building maintenance expenditures.

District administrators were divided about the impact of the property tax reassessment. Some felt that the reassessment would be revenue neutral; others thought the reassessment would provide an opportunity for a one-time increase of revenue amounting to 10% or less, dependent on school board approval. Five districts indicated concerns that the property tax reassessment would substantially hinder their ability to pass a referendum in the near term because public perceptions of school funding are predicated on local property tax allocations. Four districts explicitly indicated that local politics would prevent their school boards from approving a one-time increase, causing them to fall even further behind in raising local revenue compared to more property-wealthy districts. Charters were also divided about the impact of the property tax reassessment on their funding. Four charters indicated that an increase in property tax revenue would trickle down to them. Three charters implied skepticism about an increase in revenue by stating that the reassessment would be revenue neutral.

Districts overwhelmingly agreed that the current system for capital improvement was insufficient for balancing the costs of existing and deferred maintenance of current buildings with the need for new building construction to accommodate growing student enrollment. Ten district administrators felt that state funding is being preferably allocated to the construction of new school buildings over maintaining or upgrading existing school facilities. Several districts were frequently cited as receiving a disproportionate share of major capital improvement funds, as the student populations in those districts are increasing more rapidly there than in other parts of the state. For other districts, concerns about the growing costs of deferred maintenance have led these administrators to repeatedly apply for certificates of necessity, only to be turned down because there is not enough capital improvement funding to address the need for new buildings while also maintaining aging buildings, some of which are nearly 100 years old. Charter schools, different in funding structure, reported either leasing existing buildings from private institutions or financing construction of new buildings through some combination of bonds, bank loans, grants, and private donations. These themes are described in more detail below.

Theme 1. District administrators overwhelmingly described the referendum process as risky and costly—undertaking a referendum requires significant amounts of time, labor, and money—all of which distract from the primary purpose of schools, which is to educate youth.

Seven administrators explained that passing referendums in their local communities was particularly difficult due to local politics and community perceptions of the utility of public schools. In particular, some districts indicated that a substantial share of voters in their communities actively campaign against local referendums, especially retirees and/or those who come from out of state to purchase a second home. As suggested by 10 district administrators who participated in this study, referendum reform might involve regular increases in basic operating and maintenance expenses provided by the state, with local referendums only undertaken when major capital improvements are needed for school facilities.

A real limitation of the whole referendum process in Delaware is that it's two separate referenda, operating versus capital. Not only is it a very labor-intensive process and a political process and all the rest of it, the added layer on top of that is, districts have to be strategic, in that if you have an operating need, and the state's not willing to fund capital, you have to play this game in your head. If you go for operating ... it's hard enough to get people to come out and vote, "Yes, raise my taxes." There's no way you're going to get them to [vote for a referendum] 2 years in a row, because they don't necessarily understand the difference between the two [operating versus capital]. It's not only difficult to raise that revenue, but then it's an added difficulty, because the timelines of the two don't line up with state revenues or state opportunities for revenue. So, we end up putting one off to hopefully get both. And there's no guarantee, of course.
– District administrator

The ideal would be … to have a funding mechanism where the local costs and state costs were all covered by a general tax that the state does, and you don't have to go to referendum for current operations. Somehow have that all funded through the state. ... If they believe that property tax is too low, then raise that to cover all of the costs associated with staff and running the buildings, and then only have it where you go out for referendum for capital projects.
– District administrator

We're one of few states that don't really provide … the sustainable funding. As costs continue to grow, we are then expected to go out to referendum. I think that kind of perpetuates or promotes current resource inequities within our system, because those districts who can, in essence, go out and get the support, depending on their demographics and geographics, where the idea of a referendum is somewhat routine. They're on cycles of every 2 to 3 years; their community kind of anticipates it. Where we look at it for our district, we haven't had an operating referendum in 10 years, going on 11 years now, and a capital [referendum] since 2015. When you have aging facilities, infrastructure, and you routinely are deferring maintenance, it comes at a major expense. When you're heavily reliant on that state funding, as a result it promotes and creates sustainability issues on the local side. It's painful.
– District administrator

We're busy year-round anyway. And then during referendum, we have to do a whole bunch more in terms of evening meetings to determine how much we're going to ask for, to build consensus, to build understanding and all that kind of stuff with the community. Then going out, once we've officially decided what the number's going to be, meeting with each PTA … meeting with student parent groups, meeting with people in the community, going to the senior center, talking with them. It's expensive too, because you go to referendum, and you've got to legally notify everybody in the community. You have to send out mailings to them. You have to put notifications in the newspaper. It could cost you $50,000, $75,000 just to run a referendum campaign, even if you don't get the new money to run it. You have to be careful. You almost have to say, well, if we don't think we're going to pass, is it worth spending $75,000 to run a campaign?
– District superintendent

Theme 2. With aging school buildings and a growing student population, most districts indicated that the capital improvement system does not reasonably meet the costs of maintaining existing buildings while providing funds for new building construction.

District administrators perceived the construction of new school buildings to accommodate increasing enrollments as being prioritized over maintaining existing and aging school buildings. Six districts explicitly noted that the minor capital improvement funds they receive annually to maintain building infrastructure are insufficient for addressing growing deferred maintenance. Several administrators noted inefficiencies in the major capital improvement system—applying and reapplying for certificates of necessity year after year, only to be denied; receiving some

major capital improvement funds to address one building maintenance issue, only to tear down the building later; and a funding structure that does not account for the age of buildings.

Several of our schools are close to 100 years old and they're still super functional. But knowing the backlog there is in Delaware with school construction, I mean, when we're going to need new schools … it's a little concerning because it's probably 10 years down the road that we'll even have a chance at getting the financing for something that big of a project, and who knows what's going to happen between now and then. … We submitted [a certificate of necessity] a little over a year ago for new roofs in the district because it exceeded what our minor capital improvement funding on a year-to-year basis could support. I mean, we had $4 to $5 million in roof replacements that needed to be done. And with a $500,000 MCI budget, you just couldn't get to that. We couldn't replace roofs with a $500,000 MCI budget. We requested a certificate of necessity for roofing projects, and that was turned down just because it wasn't a high enough priority for the Department of Education.

– District superintendent

We have 15 school buildings. And then if you add in other buildings that we maintain, I think it's 18 total facilities. And we get about $1.5 million annually from the state. Just a couple million, yeah. Add a couple zeros to that number. We did a district-wide needs assessment 3 or 4 years ago now, and the 10-year deferred maintenance number for our district alone was $600 million.

– District administrator

Theme 3. Owing to the nature of state policy, charter schools reported external fundraising efforts to offset the gap between funding and expenditures, leaving them with a burden of raising revenue from private sources to fund operational projects and capital improvement.

Charter school leaders cited the lack of appropriation of major capital improvement funds from the state as a chief reason for external fundraising efforts. A combination of mortgages, bonds, and private donations are used for acquiring or constructing charter school facilities. Nine charter school leaders reported cooperation with other charter school leaders as a means for maximizing fundraising efforts, and even hiring development staff to support fundraising efforts. Without this cooperation, several charter school leaders reported that fundraising would be too difficult and time consuming to undertake.

We are blessed with [a] wonderful board of directors that are really good at fundraising. Programmatically, yes, you could say we receive enough money. ... But we're building a new $22 million expansion, and we have to fundraise everything. … We get $0 from the state. So, I mean, the foundation that owns the facility is actually doing all the fundraising, not the school. But no, we don't receive enough money for the buildings.
– Charter school leader

Now we have staff here that are full-time team members that pretty much ... development team, we pay them to do this, but sometimes it's worth it. They're not funded positions. I'm not going to say what their salaries are, but if you look at how much money they've raised for us, you can't argue.
– Charter school leader

When I look at us as a unit … the charter world of 20-some schools, if there's one [charter school] that needs to go after some local groups for funding for something right now, then my turn will come at another time and I hope at the same time that they will be backing off when [there are] additional things that we need … you do time it at the right time; it is a respectful partnership. I think that you only ask when you need things and that you are ... I think we're respected for that, of not being overly aggressive or pushy when we can find other ways to do things.
– Charter school leader

We are working, or ramping up, our fundraising capabilities between the board and the school. My role is moving more into marketing and development because we do have a need for that. As we look for a permanent building, being able to have those connections and ability to raise funds is crucial. The problem is because we're small, we're all wearing a bunch of hats. Being able to carve out time to network and build those relationships when you're doing the day-to-day stuff.
– Charter school leader

Relationships Between Districts and Charter Schools

District and charter school leaders were asked about the nature of the transactions occurring between them and their perceptions of how state fiscal policies impact their respective

finances. Charter school leaders were asked if they had service agreements with nearby districts, how those contracts were recorded in expenditures, and whether districts were obligated to support charter operations in any way. Charter school and district leaders were asked to describe how state policy dictating transfer of local funding from districts to charters, referred to as the local cost per student, impacted their respective budgets and expenditures.

Analysis of interview data indicated that, in general, charter schools do not regularly contract services through districts and vice versa. There were a few exceptions. One district specified a contract with charter schools to run specific bus routes. One charter school reported receiving transportation services from a district and another reported receiving nutrition services from a district. Additionally, two charter schools reported contracts with at least five other charter schools for services that include operations and technology support. We found no instances where districts provided services to charter schools or vice versa that would not be represented in the expenditures in the fiscal data for the entity receiving the services. These contracted services are captured in budgets and expenditures separate from local cost payments and receipts. School leaders indicated no specific policies impacting levels of local funding provided to charter schools except as allowed under state fiscal policy; all transfers of funds from districts to charters are managed by the Delaware Department of Education.

Charter school leaders described numerous challenges with the policy for calculating the local share—in particular, the fact that current policy creates financial instability from year to year. Both district and charter school leaders discussed several ways in which current fiscal policies create and perpetuate inequalities between charters and districts. District leaders in areas with high charter enrollments reported that loss of enrollment to charters strained their finances. Charter school leaders reported lack of transparency in district allocation of the local share and large year-over-year changes in the amount of the local share allocated from sending districts. This has resulted in animosity between some charters and districts, which ultimately impacts the quality of services provided to students. These themes are explored further below.

I want students in charter schools to be successful and thriving as well, because when they don't, they come back to us, and we have to fix them. I don't think it benefits anybody in the system for charter schools to fail or for them to be underfunded or on tenuous financial ground. That's part of why I think the system needs to be looked at, because there are districts where animosity is so high between the district and the charter schools that they are making decisions that are maybe not punitive, but [the decisions are] certainly not benefiting the district's kids, just to spite the charter schools. That dynamic doesn't put anybody in public education in a good light.
– District administrator

Theme 1. The local cost per pupil for charters, which is based on local spending, not revenue, varies significantly depending on the sending district. Charter school leaders perceive financial instability in local revenue due to this condition.

Based on district spending in the prior year, the local per-pupil costs for charter schools can significantly vary year over year and across districts for several reasons. The policy for calculating the local cost determines the amount of money charters schools receive from individual districts in the current year based on district per-pupil expenditures from the prior year and the number of students from that district enrolled in a charter school on September 30 of the current school year.[5] Although total student enrollment may fluctuate during the academic year, the amount of local revenue charters receive from school districts is based on the total number of students enrolled on September 30. Therefore, if a charter school receives an additional 20 students from a district after September 30, they do not receive the local funding from the sending district for those 20 students. However, the opposite is also true—if students leave charter schools to return to district schools after September 30, charter schools are not required to refund local dollars to the district. Both charter school and district leaders agreed that the policy of determining enrollment for the basis of funding at a single point in time creates challenges for budgeting.

[5] See Title 14, Chapter 5 of Delaware Code: https://delcode.delaware.gov/title14/c005/.

And it makes it very difficult, from a budgeting perspective, to then, once you've already got the year started, because you figure the fiscal year begins in July and so teachers are starting in August, if we're not really having all of the information that we need until October and we're now making decisions where we are more than a quarter a way through the year, that that can be quite a challenge. It really can be.
– Charter school leader

If students go to charter schools, districts lose that funding. But if they return, they don't get that funding back. … Charters will receive local funding for [special education student] but if that kid returns, district doesn't get that funding back—even if they have the tuition tax.
– District administrator

All district and charter school leaders reported that the local cost calculations are regulated by state policy and there are no local policies that impact funding to charter schools (or other receiving districts). However, 14 charter school leaders described how the current policy creates an unstable environment for charters to collect local revenue from districts and accurately forecast their budgets.

Because district local spending varies year over year, charter school leaders reported local funds received from sending districts were also inconsistent year over year. Eleven charter school leaders noted that receiving payment based on spending and not revenue contributes to instability in budgeting. Charter school leaders also reported that more affluent districts spend more per pupil than poorer districts. Owing to the differences in spending, the local cost per student varies by district. Even when year-over-year enrollment remains steady in their schools, charter school leaders asserted that the composition of sending districts can shift considerably, which in turn influences the local revenue charters receive.

The other thing is that districts all pay differently for those different units. I mean, we can go to [a school district] and you might get $15,000 for a complex kid, but [another school district] is going to give you $35,000 for a complex kid. Every year we have to look at exactly what we have and figure out our budget around the children, the various children we have in the seats.
– Charter school leader

I can make a reasonable projection, but nothing's changing on my end except for what the districts around me spend, and that impacts my ability to plan and do some of the future thinking around funding decisions because you're always worried about what the districts around you are spending, which is odd. I have nothing to do with the districts around me and my enrollment is steady, but [local cost per student] can fluctuate because of what they spent in the previous year.
– Charter school leader

It's not like we can go to the [sending] school district and say, "We want this to increase by X amount of dollars." We do not have that flexibility. And as I spoke about earlier, that can change from year to year, potentially drastically. It can go in the positive or the negative. So last year, we saw a negative decline in local dollars. This year, we're seeing a positive increase in local dollars. And sometimes it remains relatively flat. You just never know until you get into that year to see how things are going to pan out, but there's no negotiation that we can do at all. But it will fluctuate from year to year, you just don't know how the pendulum's going to swing, honestly.
– Charter school leader

Furthermore, local spending can be influenced by the availability of state and federal dollars. Charter school leaders gave ESSER funds as an example of this influence. One charter school leader suggested that districts may have spent less local revenue dollars during the height of pandemic due to the availability of ESSER funds, even though the total cost of educating students remained the same or increased. As a result of the availability of other funds, local per pupil expenditures can drop in sending districts, which can negatively impact the local cost payment to their charter school.

Really, the influx of ESSER funds exacerbated that [situation], right? I know that on paper this expense was only, it's only for directly COVID-related expenses, but there's an economy of scale where [districts] can get some other stuff done using those funds, which then reduces their local spend, which reduces our revenue next year. So, it's too many opportunities for these fluctuations. It's all beyond our control. ... And there's not a great deal of transparency.
– Charter school leader

Theme 2. Charter school leaders perceive that state policies allow districts to exclude specific local revenue sources and expenditures from the local cost calculation. Local revenue generated by tuition tax for students with special needs is a contentious issue among charter school leaders.

State fiscal policies allow districts to exclude specific local revenue sources and expenditures, such as minor capital, debt service, tuition tax, food service, and transportation, from the local cost calculation to charter schools. Tuition tax was a particular source of contention among charter school leaders interviewed for this study. Because districts use tuition tax dollars for specific purposes, such as the education of students with complex and intense disabilities through special programs, these funds are excluded from the local cost calculation determining how much local revenue charter schools receive. Charter school leaders indicated that tuition tax exclusions contribute to substantial variation in local cost-per-student amounts year over year from individual districts. Owing to district economies of scale, charter schools that serve large proportions of students with intense and complex disabilities are especially affected by fluctuations in local cost amounts, as they attempt to provide the same services and supports to these students as larger districts. A few district administrators claimed that charter schools are not bound to the same fiscal policies as districts, and as a result, charter schools can use local cost shares in more flexible ways than districts can.

There's no guarantee [tuition tax is] going to be tied to that kid. [Charter schools] just want the tuition tax based on that kid, whether they need it or not. Not okay. We only use it if it's necessary. The district that generates those funds has a say in it … [charter schools] don't say, "No, you can't send this kid to this school based on their IEP." I mean, of course they work with us, and we do what's best for the kid. To me, it seems absurd that charter schools would just get money that's generated without having to apply it to that special need for that student for a tuition tax purpose.
– District administrator

There has to be more transparency in what districts are excluding. I think this is partially a human capacity issue, because it's a lot of data. One person in our state for charters is looking at what districts are submitting, and they just exclude categories and there's just not oversight of what is categorized in a district. There's no uniformity, so what happens in one district is completely different than [what] happens in another. I'll be clear that in the charter world, it's the same way. How we might code something might be different than the way somebody codes something 10 miles from me.

– Charter school leader

We do get some money from districts for special education ... like if we identify a student that has intense, complex [needs], yes, we still get some funding from districts from that, but it's not the whole piece. That's the argument … we don't feel like we're getting enough. … We have [special education] programming. That needs to follow us. But tuition tax money you're diluting, as you've brought your special ed students into your main population, you've diluted the counts, because the dollars are being excluded from the numerator, your total spend. But the student population is actually growing because those are still in the denominator. It's complicated.

– Charter school leader

Theme 3. Both district and charter school leaders perceive that funding rules related to local cost payments to charter schools create inequalities. Some charter school leaders feel that districts are able to "game the system" in calculating local cost payments to charter schools. District leaders perceive charter schools as having a financial advantage because they have more leeway in how to spend funds.

In describing some of the challenges related to the current funding laws for charter schools, charter schools and some districts mentioned multiple ways in which they felt that current policies created or perpetuated inequalities between districts and charters. Six charter school leaders explicitly expressed frustration about what they perceive to be a gaming of the system by districts who allocate local funds in ways that obfuscate the actual total amount of local revenue they collect through property taxes and other special tax collections, including tuition tax and match tax, and then spend as part of their total budget. In essence, charter leaders often intimated that there was not enough transparency in the use of local funds by districts, and changes to local cost-per-student calculations year over year raised questions about how

local spending was being documented by sending districts. On the other hand, five district administrators described being held to funding standards or restrictions to which charter schools were not bound, thus having less leeway in the use of local funds.

So what I understand of the differences between how districts get funded and how charters get funded, when it comes to staff, instructional staff that you would find in a classroom, there are no differences, except for the fact that if a charter school has a vacant unit that they aren't filling for whatever reason, they would get the cash value of the average salary, of that position, as part of their funding. Districts don't have that benefit.

– District administrator

Some districts are really good at hiding, and I say that because they're trying to maximize their local [share] ... I like to believe they're doing it for good reasons, that they're trying [to] maximize supports for their kids, but they are very good at moving monies around in their local funds to exclude them from being counted as eligible to be paid to charter schools. Some districts are very equitable in how they do it. I'm very fortunate in that the [one district], which is about 40% of my kids, is very equitable and fair, and I don't think plays the same games as some of the other districts. The downside is, I have about 20% of my kids come from a district who plays significant games in their local funding, and we see dramatic increases and decreases in their per pupil spending, which can only be explained by shifting categories of funding.

– Charter school leader

In the end, [charter schools] are public schools. Granted, they have different flexibility, in terms of autonomy, in terms of how they operate with the revenue that they receive. I don't think they're bound by the same kind of budgetary processes, in essence, that [districts] are. However you choose to look at it, if it's good or bad, I think when you look at failing charters, most of them fail or go under because of mismanagement around finances.

– District superintendent

I've had, on more than one occasion, forecasted revenue based on what they paid me last year. And then they changed their accounting and I got less. [Districts] shouldn't change how they code things. A new CFO can come in and say no, we should do it this way and so forth and so on. But the downstream effect is that charter schools are affected, and that's happened to me at least twice. Every business manager holds their breath just to see what they're going to get from the district each year. This year, most districts increased their funding, but one or two did go down.
– Charter school leader

[Charter schools] just get local funds in a discretionary, basically operational account that they spend to meet their needs. … I will say that I think additional flexibility is never a bad thing for anybody. But I think there should be equity in terms of the flexibility across both districts and charters. With that flexibility, maybe there needs to be additional transparency and accountability.
– District administrator

Theme 4. Charter schools' impact on district finances varies based on the year-over-year enrollment trends in the district.

Similar to the variation in impact of district spending on charter school budgeting, charter schools' impact on district finances can also vary year over year. However, the magnitude of the impact depends more on the sending district's financial position. Districts that are net importers of students—those that take in more students from other districts and charter schools than they lose—consider the impact of charter school enrollment finances to be inconsequential. Indeed, districts experiencing increasing enrollment may even benefit from their students enrolling in charter schools, as it reduces the total enrollment in some buildings that would otherwise be overcrowded. On the other hand, districts that are net exporters of students—those that lose more students to other districts and charter schools than they take in—feel the impact more strongly. One district even indicated that charter school enrollment has impacted their ability to go to referendum. Specifically, waning district enrollment and high-performing charter schools within the district's boundaries makes it difficult to convince community members to vote for property tax increases for operational or capital expenses.

[District leader] talked about the capacity in our buildings; as time has gone on, we're school choicing less and less students in because we don't have the room for them. Then that means we're sending more and more students out. There's been a little growth in the charter schools here in Sussex County and I think a new one's opening up next year as well. I think my numbers off the top of my head are correct, but when I started here 3 years ago our budget for those was like $600,000 and last year it was $1.8 million. I think it will be higher this year, so that's a big chunk of the tax receipts that we get.

– District administrator

[We lost many students] here in 2015 when we weren't performing well ... and we've been trying to pull back students over the years. But then during that time a new charter school popped up in our area, and we were losing a lot of students and money to that charter school. … So what's interesting for us is that we grew this year, I forget how many students … but we still lost a lot to the [charter] school. If we could keep all these students, then we'd be looking at a possible means for a referendum, because we would be overcrowded.

– District administrator

Theme 5. Citing needs similar to those of a large school district, charter school leaders reported the lack of funding for school support staff and administrators as a challenge.

Several charter school leaders noted the need for school support staff, such as full-time nurses, and administrators, such as financial officers and superintendents, but noted that such positions are not part of the funding formula for charter schools. Charter school leaders reported that although there is flexibility in their use of funds, they are often forced to make decisions about whether to hire additional instructional staff or fund school support positions.

All our staff is spread very thin … we're very dedicated, and we wear a lot of hats. Whereas in districts, we don't have someone wearing the hat of head of school and principal. But we have tried to put as many resources into our students, such as paraprofessionals and teachers and special education. We try to put the bulk of our revenue into directly affecting the students, which doesn't give us the indirect costs that we need to actually operate the school. Because even though we're a smaller school, we still have to meet all the requirements of the big districts, but with less people to be able to do that.

– Charter school leader

We maximize our [grade] 4 to 12 class size of regular ed students at 27 to one, by putting 27 students in a classroom, and I'm funded at 20 to one; it allows me to put in additional supports, et cetera, that are needed within the state funding system. For example … a CFO is a not funded position. I'm funded as a secretary because we don't get a CFO. I don't get a tech person.
– Charter school leader

Conclusion

The interviews with district and charter leaders revealed several perceived strengths and areas for needed improvement to the current funding system. In particular, the unit system was seen as reliable and stable, especially in the face of increasing personnel costs. Despite the reliability, administrators noted that certain critical staff positions were not accounted for in the unit system, leading to difficult choices with respect to trading in certain types of positions to cover those critical staff positions.

Administrators appreciated the addition of Opportunity Funding as a mechanism to improve equity. However, they questioned whether it was enough to meet the needs of low-income and EL students in their schools and districts. They also felt that the state's current approach to addressing differences in capacity to raise local revenue through equalization funding was insufficient.

Although administrators appreciated additional funding appropriations, such as Opportunity Funding and mental health funding, the adding of additional appropriations outside of the unit system was seen to create issues. In particular, administrators felt these additional funding streams diminished the transparency of the system, reduced flexibility in how funds can be used, and created additional administrative burden. In general, administrators suggested that the unit system itself be modernized to distribute more dollars through the unit system as opposed to adding more side appropriations.

The difficulty of raising local revenue was a source of frustration for district administrators, noting that the referendum process is costly, time consuming, and risky. Charter school administrators were also frustrated with the process by which they receive local revenue, perceiving the calculation of local cost payments from districts as not transparent and unreliable from year to year.

Along with our analyses of equity and adequacy of Delaware's school funding, these findings will help guide our recommendations for how to improve Delaware's system of school funding.

Appendix B. Equity

Additional Exhibits

Exhibit B1. Descriptive Statistics of Cost Factors (2018 to 2022)

Variable	Mean	*SD*	Minimum	Maximum
Student needs				
Low-income %	33.5%	16.8%	2.7%	100.0%
Students with disabilities %	18.2%	6.8%	0.8%	71.9%
Students with complex disabilities %	1.4%	1.8%	0.0%	28.1%
English learners %	10.9%	11.6%	0.0%	73.9%
Programming/grade range				
Vocational/technical units %	3.6%	5.3%	0.0%	22.4%
Elementary school enrollment %	44.6%	46.9%	0.0%	100.0%
Middle school enrollment %	24.1%	38.6%	0.0%	100.0%
High school enrollment %	31.3%	44.5%	0.0%	100.0%
Population per square mile of zip code	1,493	1,616	94	7,930
Population density category				
<300	20.7%			
300 to <800	28.9%			
800 to <2,000	22.5%			
2,000 to <5,000	24.7%			
>=5000	3.2%			
Enrollment	935	499	112	2,462
Enrollment category				
<300	1.1%			
300 to <450	10.3%			
450 to <600	16.3%			
600 to <800	20.5%			
>=800	51.9%			
Geographic cost (CWIFT)	0.090	0.062	0.000	0.143
Number of school-by-year observations	948			
Number of unique schools	192			

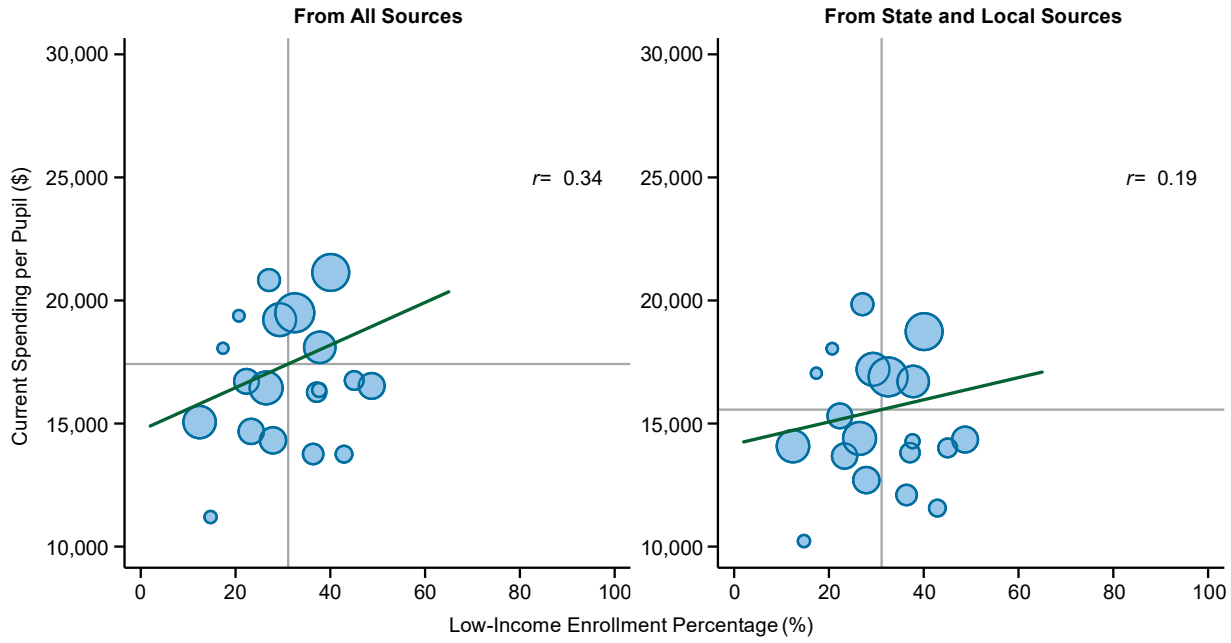
Note. The schools included are from the main analytic sample. This excludes schools observed in the data with fewer than three years between FY 2015 and FY 2022 as well as early childhood schools, special schools, adult schools, and intensive learning centers. Averages are weighted by school enrollment. The standard deviation, minimum, and maximum are not shown for binary variables. Data from the Delaware Open Data Portal, Delaware Department of Education, and U.S. Department of Education.

Exhibit B2. Descriptive Statistics of Cost Factors (2022)

Variable	Mean	*SD*	Minimum	Maximum
Student needs				
Low-income %	30.3%	15.3%	2.7%	82.5%
Students with disabilities %	19.7%	6.8%	1.2%	67.0%
Students with complex disabilities %	1.6%	1.9%	0.0%	25.0%
English learners %	11.7%	11.7%	0.0%	73.9%
Programming/grade range				
Vocational/technical units %	3.5%	5.3%	0.0%	21.9%
Elementary school enrollment %	43.8%	46.6%	0.0%	100.0%
Middle school enrollment %	24.2%	38.6%	0.0%	100.0%
High school enrollment %	32.0%	44.7%	0.0%	100.0%
Population per square mile of zip code	1,466	1,612	94	7,930
Population density category				
<300	22.2%			
300 to <800	27.9%			
800 to <2,000	23.0%			
2,000 to <5,000	23.8%			
>=5,000	3.2%			
Enrollment	949	532	112	2,462
Enrollment category				
<300	1.5%			
300 to <450	11.1%			
450 to <600	15.7%			
600 to <800	21.4%			
>=800	50.3%			
Geographic cost (CWIFT)	0.089	0.062	0.000	0.143
Number of schools	196			

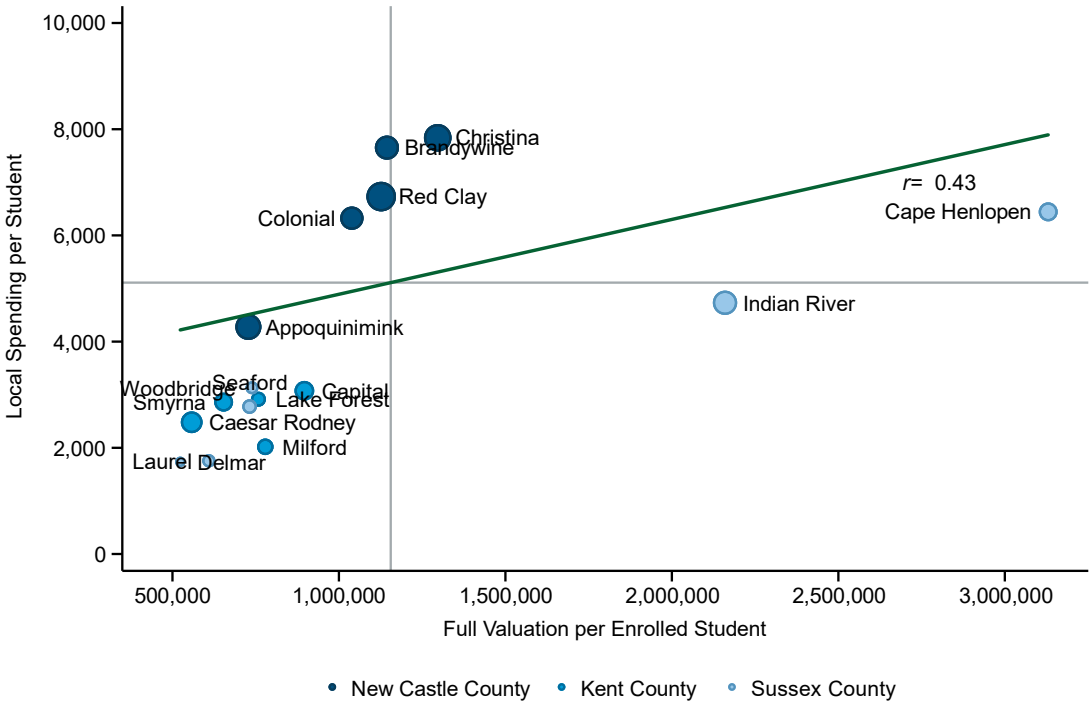
Note. The schools included are from the FY 2022 sample. This excludes early childhood schools, special schools, adult schools, and intensive learning centers. Averages are weighted by school enrollment. The standard deviation, minimum, and maximum are not shown for binary variables. Data from the Delaware Open Data Portal, Delaware Department of Education, and U.S. Department of Education.

Exhibit B3. Relationship Between Current Spending Per Student and Low-Income Enrollment Percentage Aggregated to the District (2022)



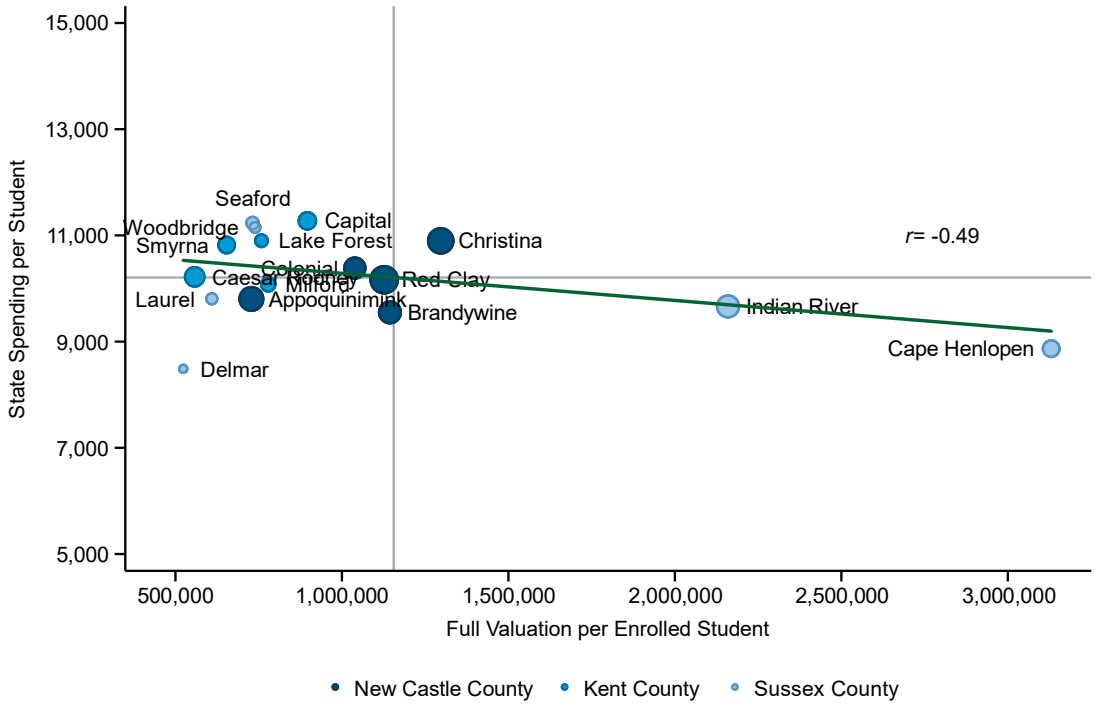
Note. N=19 districts. This analysis does not include charter schools. The gray lines show enrollment weighted statewide averages of both variables. The dark green diagonal line represents the line of best fit. The average current spending per pupil in FY 2022 was $17,419 from all sources, and $15,565 from state and local sources. The average low-income enrollment percentage was 31%. The enrollment-weighted correlation coefficient is represented by *r*. Data from the Delaware Open Data Portal and the Delaware Department of Education.

Exhibit B4. Local Spending per Pupil and District Property Wealth per Pupil (2022)



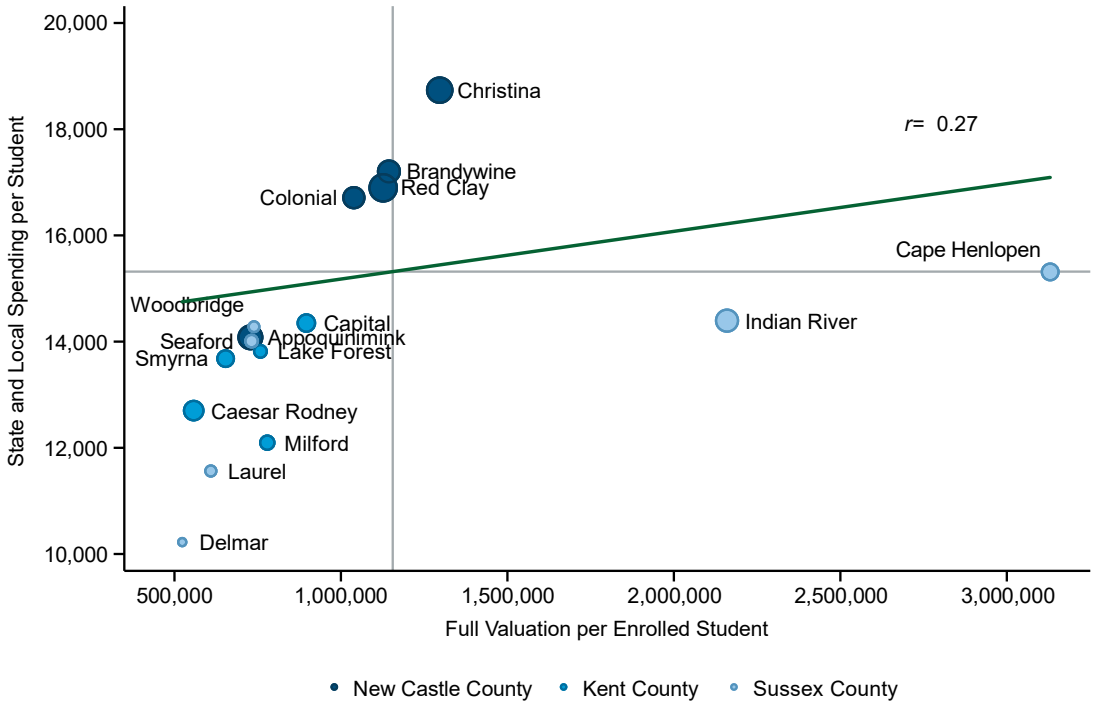
Note. N=16 districts. This analysis does not include vocational/technical districts. The gray lines show enrollment-weighted statewide averages of both variables. The dark green diagonal line represents the line of best fit. The average full valuation per enrolled student was $1,155,606. The enrollment-weighted correlation coefficient is represented by *r*. Data from the Delaware Open Data Portal and the Delaware Department of Education.

Exhibit B5. State Spending per Pupil and District Property Wealth per Pupil (2022)



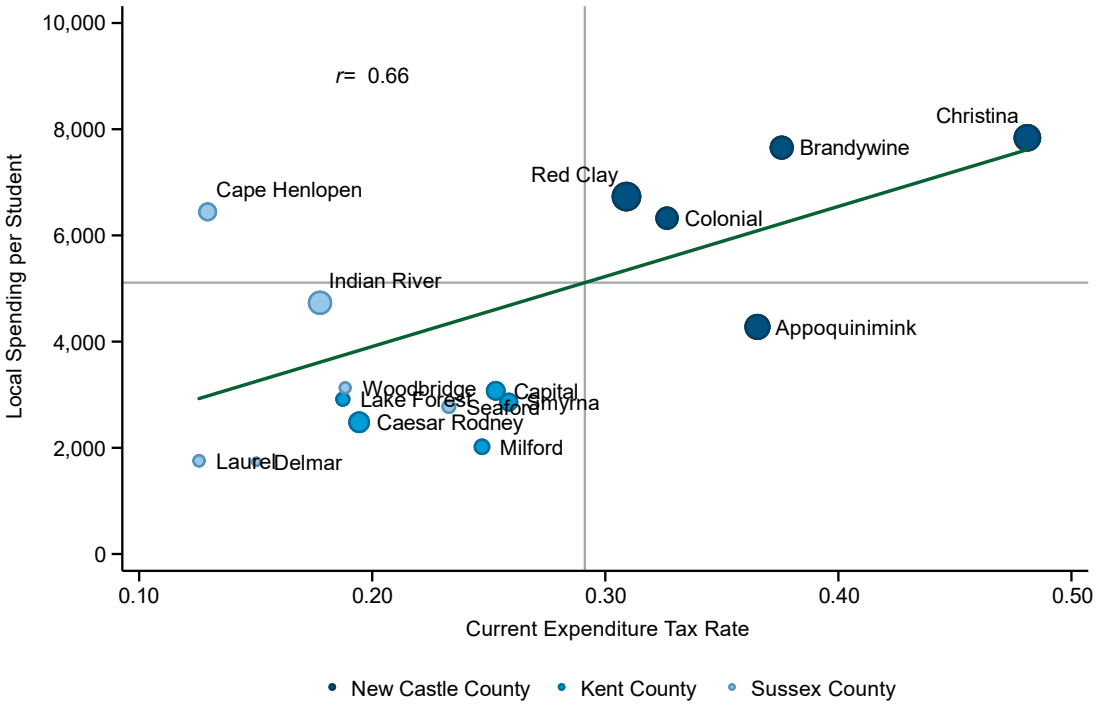
Note. N=16 districts. This analysis does not include vocational/technical districts. The gray lines show enrollment-weighted statewide averages of both variables. The dark green diagonal line represents the line of best fit. The average full valuation per enrolled student was $1,155,606. The enrollment-weighted correlation coefficient is represented by *r*. Data from the Delaware Open Data Portal and the Delaware Department of Education.

Exhibit B6. State and Local Spending per Pupil and District Property Wealth per Pupil (2022)



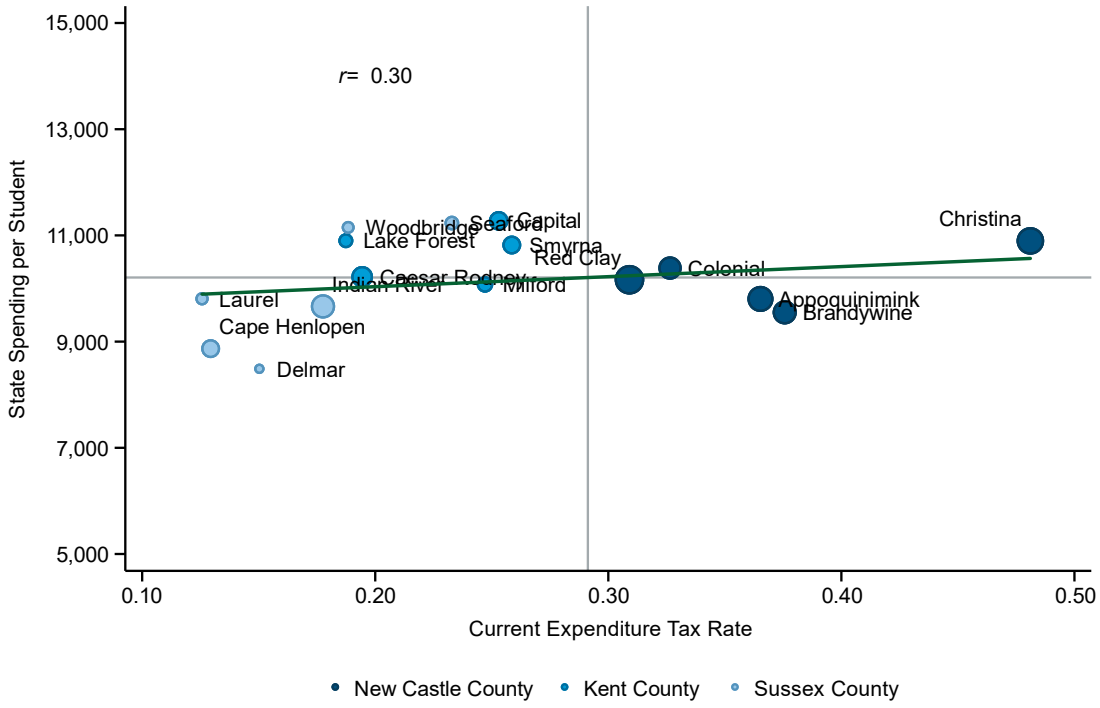
Note. N=16 districts. This analysis does not include vocational/technical districts. The gray lines show enrollment-weighted statewide averages of both variables. The dark green diagonal line represents the line of best fit. The average full valuation per enrolled student was $1,155,606. The enrollment-weighted correlation coefficient is represented by *r*. Data from the Delaware Open Data Portal and the Delaware Department of Education.

Exhibit B7. Local Spending Per Pupil and Current Expenditure Property Tax Rates (2022)



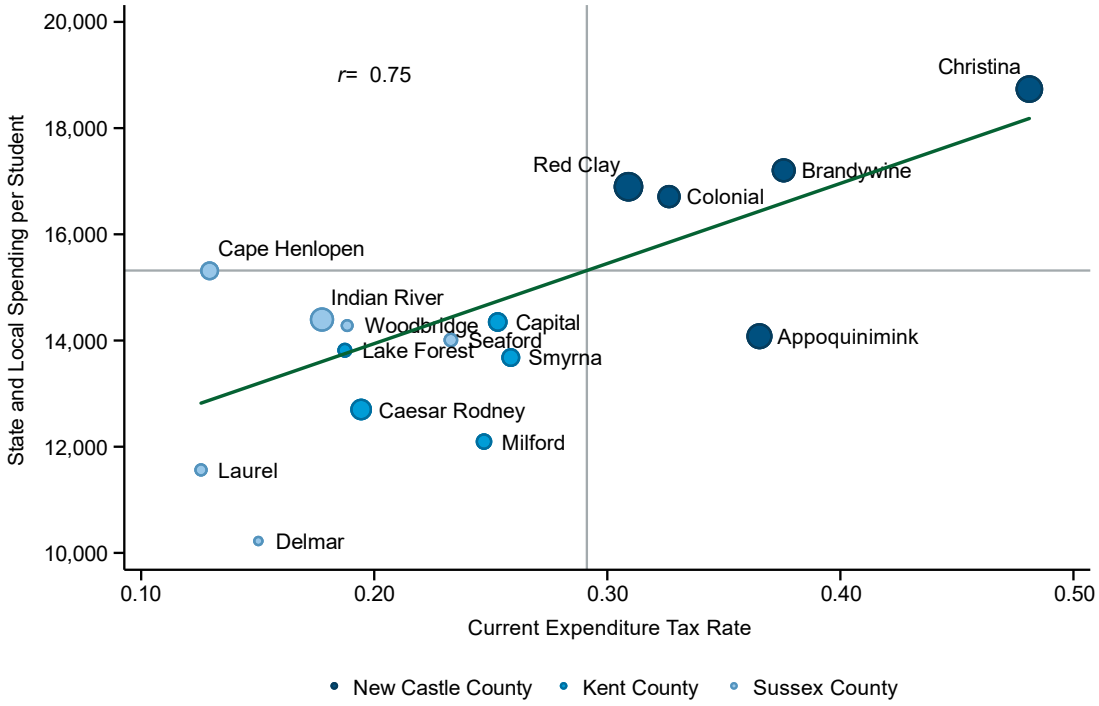
Note. N=16 districts. This analysis does not include vocational/technical districts. The gray lines show enrollment-weighted statewide averages of both variables. The dark green diagonal line represents the line of best fit. The average current expenditure tax rate was $0.29 per thousand dollars of full valuation. The enrollment-weighted correlation coefficient is represented by *r*. Data from the Delaware Open Data Portal and the Delaware Department of Education.

Exhibit B8. State Spending Per Pupil and Current Expenditure Property Tax Rates (2022)



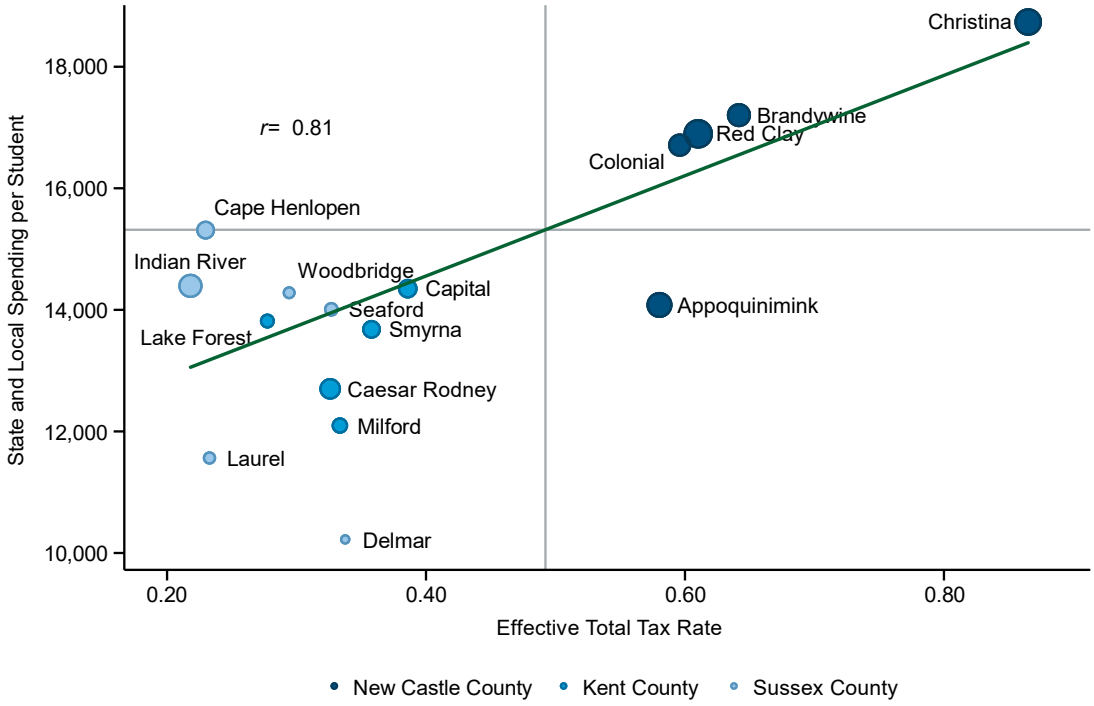
Note. N=16 districts. This analysis does not include vocational/technical districts. The gray lines show enrollment-weighted statewide averages of both variables. The dark green diagonal line represents the line of best fit. The average current expenditure tax rate was $0.29 per thousand dollars of full valuation. The enrollment-weighted correlation coefficient is represented by *r*. Data from the Delaware Open Data Portal and the Delaware Department of Education.

Exhibit B9. State and Local Spending Per Pupil and Current Expenditure Property Tax Rates (2022)



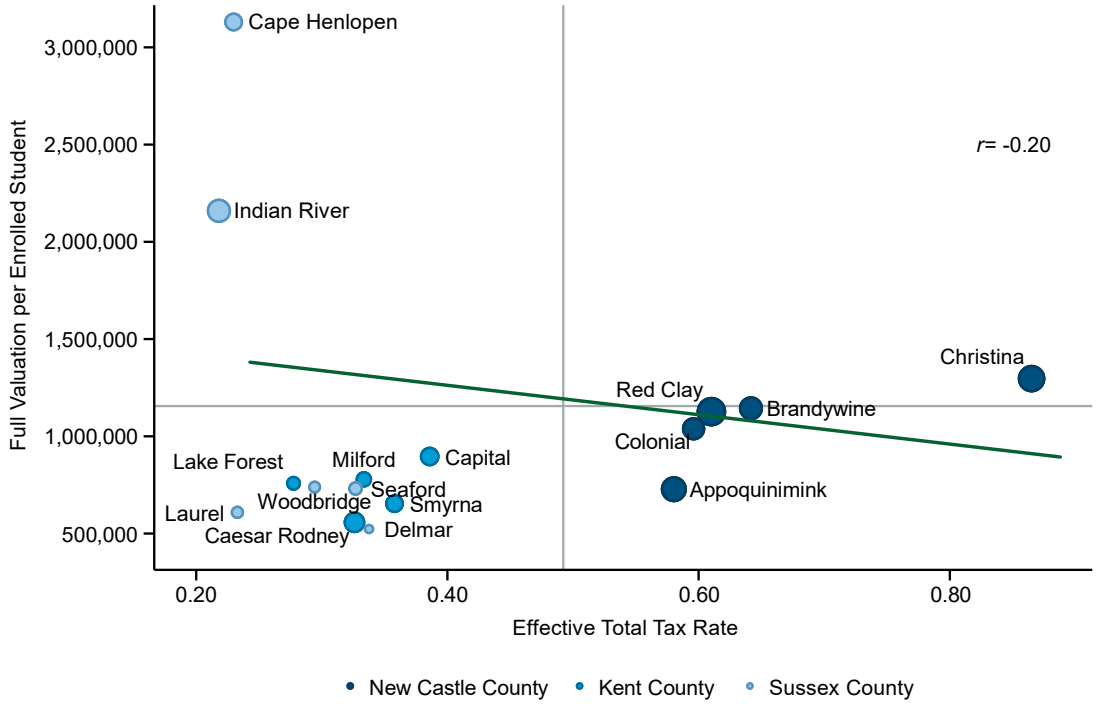
Note. N=16 districts. This analysis does not include vocational/technical districts. The gray lines show enrollment-weighted statewide averages of both variables. The dark green diagonal line represents the line of best fit. The average current expenditure tax rate was $0.29 per thousand dollars of full valuation. The enrollment-weighted correlation coefficient is represented by *r*. Data from the Delaware Open Data Portal and the Delaware Department of Education.

Exhibit B10. Spending Per Pupil and Combined Property Tax Rates (2022)



Note. N=16 districts. This analysis does not include vocational/technical districts. Combined property tax rates include the current expense tax, tuition tax, match tax, and include tax rates for the New Castle County Tax District for Brandywine, Christina, Colonial, and Red Clay. The gray lines show enrollment-weighted statewide averages of both variables. The dark green diagonal line represents the line of best fit. The enrollment-weighted correlation coefficient is represented by *r*. Data from the Delaware Open Data Portal and the Delaware Department of Education.

Exhibit B11. Combined Property Tax Rates and District Property Wealth (2022)



Note. N=16 districts. This analysis does not include vocational/technical districts. Combined property tax rates include the current expense tax, tuition tax, match tax, and include tax rates for the New Castle County Tax District for Brandywine, Christina, Colonial, and Red Clay. The gray lines show enrollment-weighted statewide averages of both variables. The dark green diagonal line represents the line of best fit. The enrollment-weighted correlation coefficient is represented by *r*. Data from the Delaware Open Data Portal and the Delaware Department of Education.

Exhibit B12. Characteristics of Districts (2022)

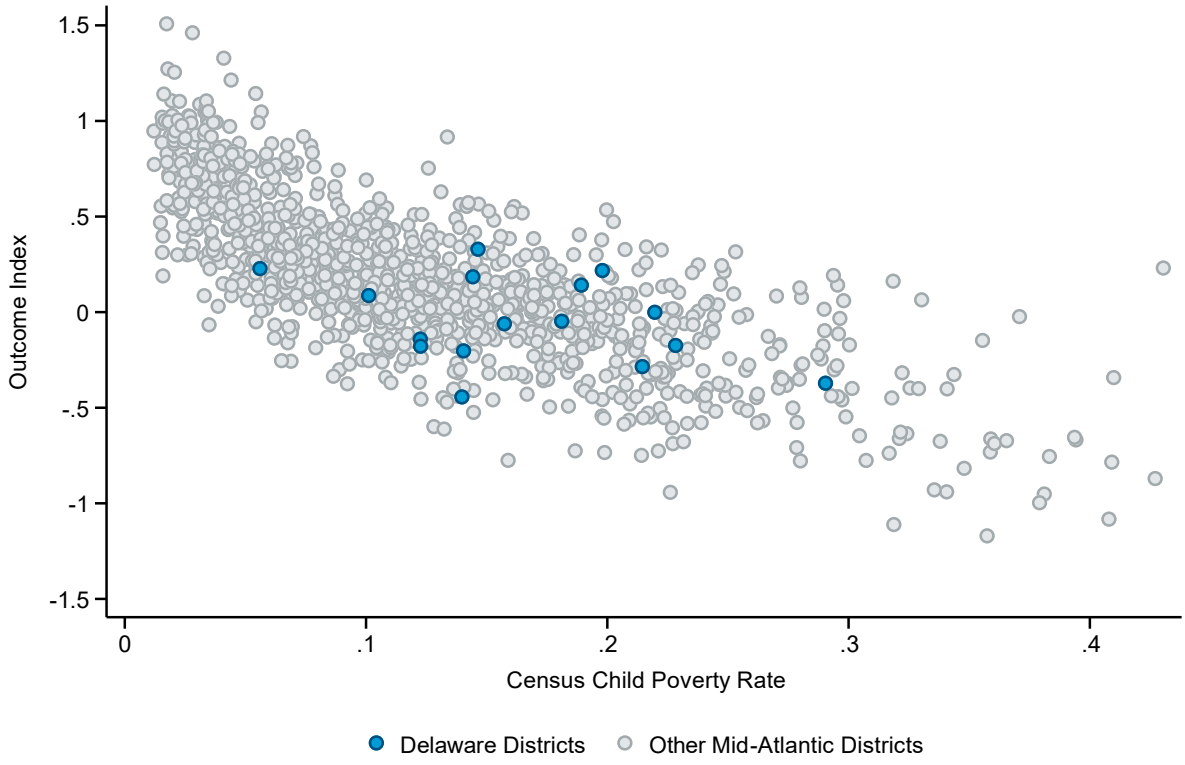
District	County	Enrollment	Low Income Percentage	Students With Disabilities Percentage	English Learner Percentage	Outcome Factor Score	State and Local Spending Per Student	Full Valuation Per Enrolled Student	Current Expenditure Tax Rate
Caesar Rodney	Kent County	8598	28.4%	21.7%	5.1%	0.24	$12,701	$557,879	0.194
Capital	Kent County	6910	47.6%	26.4%	8.7%	-0.73	$14,349	$896,203	0.253
Lake Forest	Kent County	3708	36.9%	23.3%	3.2%	0.17	$13,816	$758,382	0.187
Milford	Kent County	4618	36.3%	20.7%	20.8%	-0.22	$12,096	$778,879	0.247
Smyrna	Kent County	6294	23.3%	20.7%	3.1%	0.18	$13,680	$653,820	0.259
Appoquinimink	New Castle County	12957	12.4%	20.2%	4.1%	0.39	$14,081	$728,141	0.365
Brandywine	New Castle County	10939	29.1%	22.3%	6.0%	0.08	$17,204	$1,144,201	0.376
Christina	New Castle County	14628	39.8%	27.8%	15.1%	-0.47	$18,736	$1,296,833	0.481
Colonial	New Castle County	10138	37.4%	25.0%	13.7%	-0.90	$16,710	$1,038,948	0.327
Red Clay	New Castle County	17035	30.2%	21.8%	15.8%	-0.03	$16,896	$1,126,978	0.309
Cape Henlopen	Sussex County	6367	22.0%	23.5%	9.0%	1.09	$15,312	$3,130,317	0.129
Delmar	Sussex County	1494	14.7%	10.0%	4.6%	0.04	$10,224	$523,433	0.150
Indian River	Sussex County	11017	26.3%	19.1%	25.5%	0.41	$14,395	$2,159,670	0.178
Laurel	Sussex County	2793	42.9%	21.7%	17.9%	-0.93	$11,563	$609,271	0.126
Seaford	Sussex County	3532	44.3%	20.8%	23.6%	-0.52	$14,010	$731,640	0.233
Woodbridge	Sussex County	2634	37.6%	21.3%	17.8%	-0.67	$14,281	$738,896	0.188

Note. Data from the Delaware Open Data Portal and the Delaware Department of Education.

Appendix C. Student Outcomes and Student Needs

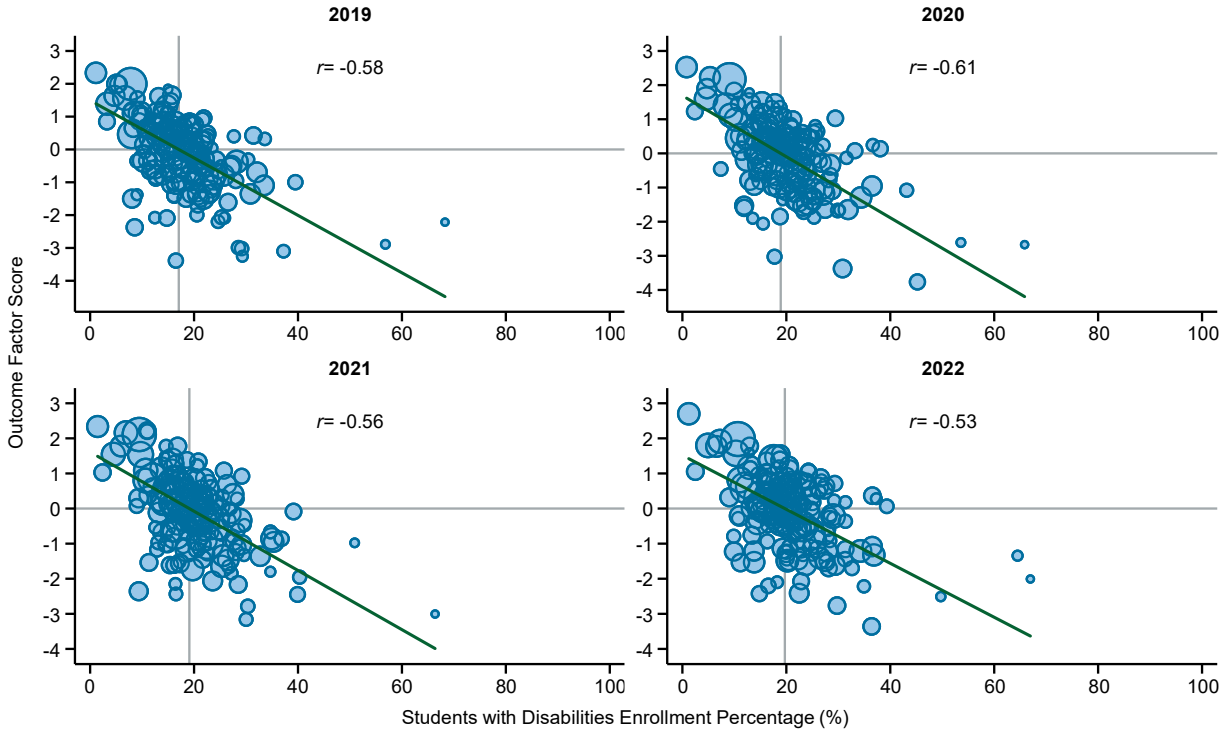
Additional Exhibits

Exhibit C1. Relationship Between Student Outcomes and Census Child Poverty Rates in Mid-Atlantic States Using National Data (2019)



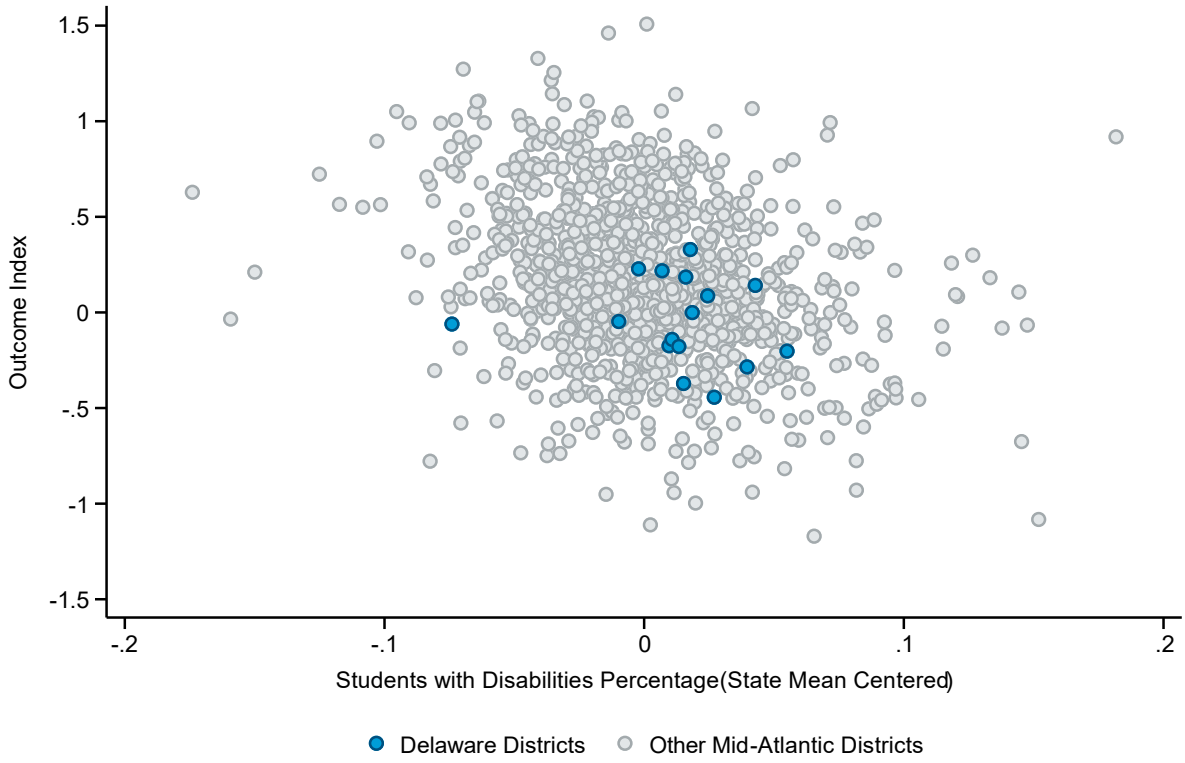
Note. Data from the U.S. Department of Education's National Center for Education Statistics and the Stanford Education Data Archive.

Exhibit C2. Relationship Between Student Outcomes and Students With Disabilities Enrollment Percentages



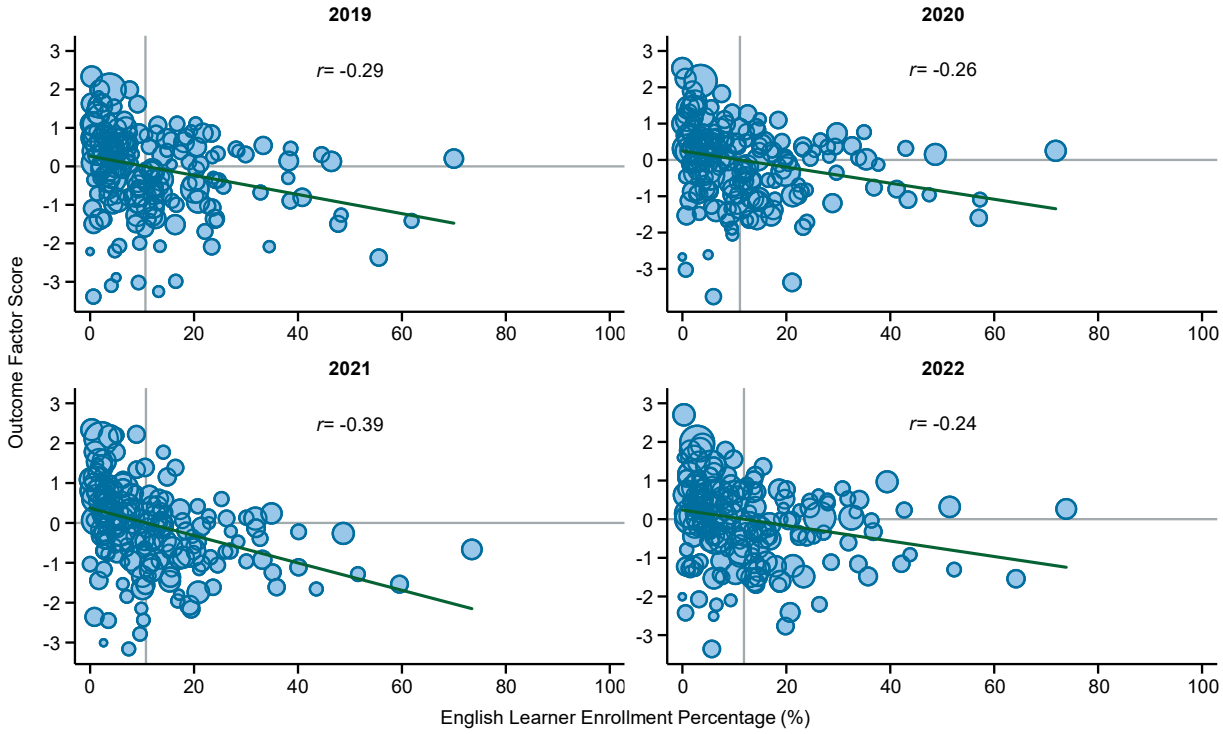
Note. The gray lines show enrollment-weighted statewide averages of both variables. The percentage of students with disabilities in 2022 was 20%. The enrollment-weighted correlation coefficient is represented by *r*. Data from the Delaware Open Data Portal.

Exhibit C3. Relationship Between Student Outcomes and Students With Disabilities Percentages in Mid-Atlantic States Using National Data (2019)



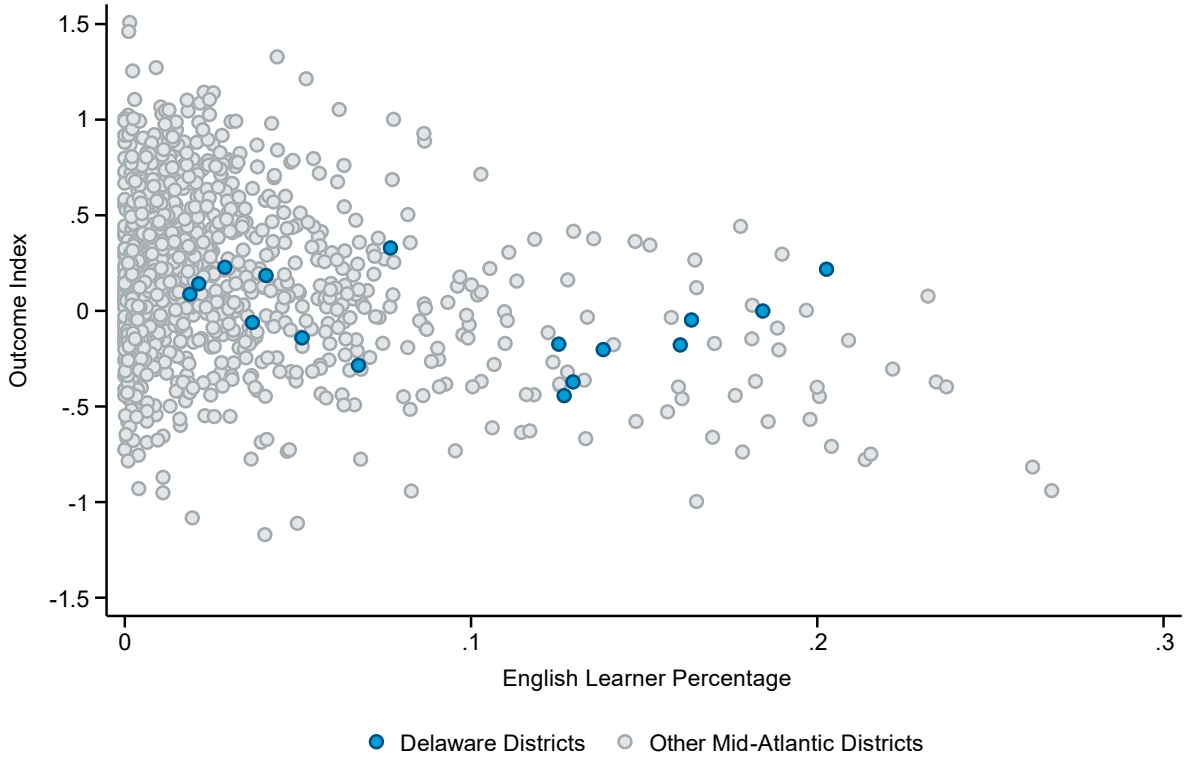
Note. Data from the U.S. Department of Education's National Center for Education Statistics and the Stanford Education Data Archive.

Exhibit C4. Relationship Between Student Outcomes and English Learner Enrollment Percentages



Note. The gray lines show enrollment-weighted statewide averages of both variables. The English learner enrollment percentage in FY 2022 was 12%. The enrollment-weighted correlation coefficient is represented by *r*. Data from the Delaware Open Data Portal.

Exhibit C5. Relationship Between Student Outcomes and English Learner Percentages in Mid-Atlantic States Using National Data (2019)



Note. Data from the U.S. Department of Education's National Center for Education Statistics and the Stanford Education Data Archive.

Appendix D. Comparing Spending in District and Charter Schools

Additional Exhibits

Exhibit D1. Regression Results Describing the Relationships Between Student Outcomes and School and Student Characteristics for District Schools

Variable	Coefficient
Low-income proportion	-3.867***
Students with disabilities proportion	-3.593***
Students with complex disabilities proportion	0.669
English learner proportion	0.029
Vocational/technical units proportion	2.459**
Middle school enrollment proportion	-0.260*
High school enrollment proportion	-0.845***
Population density	
300 to <800	0.155
800 to <2,000	0.102
2,000 to <5,000	0.210
>=5,000	-0.213
Enrollment	
<300	0.029
300 to <450	0.126
450 to <600	0.042
600 to <800	-0.084
Geographic cost (CWIFT)	-3.485***
Constant	2.296***
Number of school-by-year observations	1,333
Number of unique schools	169
R^2	0.707

Exhibit Reads. An increase in the low-income student proportion from 0 to 1 (from no low-income students to 100% low-income students) is associated with -3.9 standard deviations lower outcomes, on average, holding all other cost factors in the model constant. This coefficient is statistically significant ($p < .001$).
Note. Standard errors were clustered by school. Models include data for all years between school years 2015 and 2022. Models also control for year using year indicator variables. The constant term represents per-pupil spending in 2022 with all other coefficients set to zero. Regression models are weighted by enrollment. The reference population density category is schools in zip codes with less than 300 people per square mile. The reference enrollment category is schools with more than 800 students. Grade level proportion coefficients are interpreted relative to enrollment in elementary grades. Data come from the Delaware Open Data Portal, Delaware Department of Education, and U.S. Department of Education.
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Exhibit D2. Regression Results Describing the Relationships Between Spending and School and Student Characteristics for District Schools

Variable	A. Total Spending (2018–2022)	B. State and Local Spending (2018–2022)
Low-income proportion	1.105	0.982
Students with disabilities proportion	1.904***	2.020***
Students with complex disabilities proportion	4.583***	3.950**
English learner proportion	1.086	1.070
Vocational/technical units proportion	5.410***	6.008***
Middle school enrollment proportion	0.974	0.976
High school enrollment proportion	0.973	0.972
Population density		
300 to <800	0.989	0.994
800 to <2,000	1.075*	1.079*
2,000 to <5,000	1.128***	1.128***
>=5,000	1.152*	1.153
Enrollment		
<300	1.316**	1.303**
300 to <450	1.194***	1.181***
450 to <600	1.103***	1.105***
600 to <800	1.031	1.033
Geographic cost (CWIFT)	2.132***	2.402***
Constant	11,476.3***	10,384.6***
Number of school-by-year observations	836	836
Number of unique schools	169	169

Exhibit Reads. An increase in the low-income student proportion from 0 to 1 (from no low-income students to 100% low-income students) is associated with 10.5% more spending per student, on average, holding all other cost factors in the model constant (although this coefficient is not statistically significant).

Note. Coefficients shown are exponentiated coefficients from a Poisson regression. Standard errors were clustered by school. Models include data for all years between school years 2018 and 2022. Models also control for year using year indicator variables. The constant term represents per-pupil spending in 2022 with all other coefficients set to zero. Regression models are weighted by enrollment. The reference population density category is schools in zip codes with less than 300 people per square mile. The reference enrollment category is schools with more than 800 students. Grade level proportion coefficients are interpreted relative to enrollment in elementary grades. Data come from the Delaware Open Data Portal, Delaware Department of Education, and U.S. Department of Education. *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Exhibit D3. Regression Results Describing the Charter School Characteristics Associated With the Difference Between As-if-District Predicted and Actual Spending

Variable	Coefficient	Standard Error
Low-income proportion	990.2	695.1
Students with disabilities proportion	-7,646.5**	2,596.0
Students with complex disabilities proportion	-9,234.4	7,431.9
English learner proportion	-3,410.7**	1,050.4
Vocational/technical units proportion	34,112.0***	6,381.4
Middle school enrollment proportion	-966.0	947.4
High school enrollment proportion	-355.7	437.6
Population density		
Population density 300 to <800	573.6	535.7
Population density 800 to <2,000	1,156.8*	489.4
Population density 2,000 to <5,000	1,467.4*	639.7
Population density >=5,000	2,636.4***	570.1
Enrollment	-1.176***	0.289
Geographic cost (CWIFT)	-2,146.4	3,620.7
Constant	2,156.9***	621.9
N	112	
R^2	0.642	

Exhibit Reads. An increase in the low-income student proportion from 0 to 1 (from no low-income students to 100% low-income students) is associated with a $990 larger difference between as-if-district spending and actual spending, on average, holding all other cost factors in the model constant (although the coefficient is not statistically significant).

Note. Standard errors were clustered by school. Models include data for all years between school years 2018 and 2022. Models also control for year using year indicator variables. The constant term represents per-pupil spending in 2022 with all other coefficients set to zero. Regression models are weighted by enrollment. The reference population density category is schools in zip codes with less than 300 people per square mile. The reference enrollment category is schools with more than 800 students. Grade level proportion coefficients are interpreted relative to enrollment in elementary grades. Data come from the Delaware Open Data Portal, Delaware Department of Education, and U.S. Department of Education.

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Appendix E. Education Cost Model

Technical Details

Issues in Cost Modeling

The goal of education cost modeling, whether for evaluating equal educational opportunities or producing adequacy cost estimates, is to empirically establish reasonable guideposts for developing more rational school finance systems. Historically, funding levels for state school finance systems have been determined more by political will and economic capacity than by empirical measures of the true cost of producing educational outcomes. In this limited approach, the budget constraint—or total available revenue—and total student enrollment have been the key determinants of the foundation level or basic allotment. To some degree, this will always be true. State and local governments will always have some limit on the amount of revenues they can collect and distribute for public schools. Producing reasonable estimates of the cost of desired outcomes may increase the appetite for additional taxes or the redistribution of revenue by revealing the misalignment between costs and actual spending levels.

Reasonable estimates of cost may assist legislators in setting spending levels consistent with outcome demands and outcome goals that are attainable at desired spending levels. These estimates also may assist courts in determining whether current funding levels and distributions (or the minimum educational achievement goals, for that matter) are unreasonable, insufficient, or otherwise substantially misaligned with constitutional or other legal requirements.

Estimating Cost Models

In recent peer-reviewed literature, the dominant modeling approach includes that:

- the dependent measure is a measure of current operating expenditures per pupil,
- student outcome measures are treated as endogenous and are instrumented using measures of competitive context within which local public school districts operate, and
- attempts are made to control for inefficiencies in spending by including measures of variations in fiscal capacity and local public monitoring.

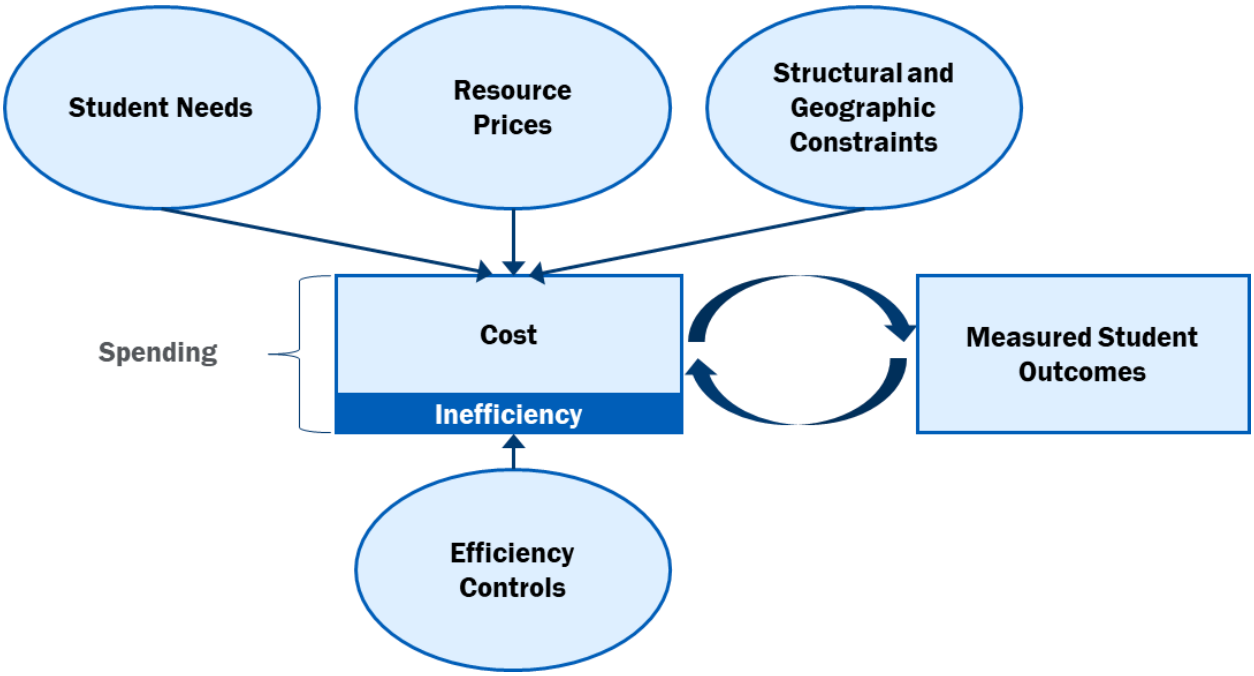
This approach is largely the product of years of peer reviews of the cost function estimation published by Duncombe, Yinger, and colleagues (see Duncombe 2002; Duncombe, Lukemeyer

& Yinger, 2003; Duncombe & Yinger 1999, 2004, 2011).[6] Here, we provide the rationale for this approach.

Exhibit C1 provides an overview of these three items. Our goal is to elicit from district spending data the cost of achieving specific outcome levels. We created a model that predicts spending levels from educational outcomes and other factors, rather than predicting outcomes from spending levels. As such, we take statistical steps to correct for the fact that spending is influenced by outcomes and simultaneously that outcomes are affected by spending: the circular/feedback loop relationship in the figure. More spending can lead to better student outcomes because increased funding can be used to reduce class sizes, recruit better qualified personnel, provide support services, and so on.

[6] The dominant modeling approach in recent peer-reviewed literature is one in which: (a) the dependent measure is a measure of current operating expenditures per pupil; (b) the potential simultaneous determination of the dependent spending measure and the assumed independent measure of student outcomes (i.e., endogeneity) requires a statistical approach called an instrumental variables technique, where the exogenous portion of the student outcomes variable is isolated using measures of the competitive context within which local public school districts operate; and (c) attempts are made to control for inefficiencies in the spending measure (spending that does not affect the outcomes included in the model) by including measures of variations in fiscal capacity and local monitoring of public spending. This approach is largely the product of years of peer-reviewed cost function estimation by William Duncombe, John Yinger, and colleagues of the Maxwell School at Syracuse University (Duncombe, 2002; Duncombe et al., 2003; Duncombe & Yinger, 2004, 2011).

Exhibit E1. Education Cost Model Components



Note. Student needs usually include measures of economic disadvantage, students who are ELs, and students with disabilities. Resource prices refer to the exogenously determined geographic variation in the price of resources (e.g., teacher salaries). Structural and geographic constraints often include the size of districts or schools (i.e., economies of scale) and population density (e.g., to measure rurality). Efficiency controls often include measures of fiscal capacity, degree of competition (e.g., from neighboring districts), and public monitoring of public spending.

However, higher outcomes in a community may drive increased spending; for example, homeowners want the schools in their district to be perceived as high performing, thus keeping their property values relatively high. In this case, there is no clear causal direction because the two factors affect each other simultaneously. The relevant statistical approach to isolate the effect of outcomes on spending—which is distinct from the effect of spending on outcomes—is to use a two-stage model, in which we use exogenous (i.e., outside the loop) measures of each district's competitive context to correct for endogeneity (i.e., inside the loop feedback) in the outcome measure.

In general, the main (second stage) equation of the education cost function is one in which a measure of current operating expenditures is expressed as a function of the outcomes achieved at those expenditure levels, the students served by districts or schools, a measure of variation in competitive wages (*Input Prices*) for teachers, structural characteristics of the district or schools such as grade ranges served, the size of the district or schools (perhaps coupled with other location factors such as population density or remoteness), and any factors that might produce inefficiencies in the spending measure. The equation may be expressed as follows:

$$Spending_{ij} = f(Outcomes^{*}_{ij} + Students_{ij} + Input\ Prices_{ij} + Structure_{ij} + Scale_{ij} + Inefficiency_{ij})$$

where *Spending* is a measure of current per-pupil operating expenses*; Outcomes* are the outcome measure(s) of interest*,* with the asterisk denoting that outcomes are endogenous; *Students* is a matrix of student need and demographic characteristics; *Input Prices* is a measure of geographic variation in the prices of key inputs to schooling such as teacher wages; *Structure* is a matrix of district structural characteristics such as grade ranges served; *Scale* is a measure of economies of scale usually expressed in terms of student enrollments, and in some cases also population density; *Inefficiency* is a matrix of variables intended to account for differences in spending across districts that are unrelated to the measured outcomes (described below); and, the subscripts *i* and *j* denote the district or school and the year, respectively.[7]

Relative Efficiency

Another issue is that not all district spending may be efficient, meaning that not all spending directly contributes to the measured outcomes included in the model. In any given district or school, only some portion of current spending contributes directly to the measured student outcomes used in the model, given the students served and the structure, size, and location of the district. The objective of the cost function is to identify the levels of spending associated with achieving specific outcome levels under different circumstances and across varied student populations, holding factors associated with inefficiency constant.

In the modeling approach used here, we include measures that the research literature identifies as predictors of differences in district spending that are not directly associated with outcomes (i.e., inefficiencies). These include measures influencing local public monitoring of public expenditures, such as share of spending from state sources and a measure of the age of the population. In addition, we included a charter school indicator variable as a measure of efficiency. It is important to understand that, in statistical terms, correcting for inefficiency in a cost model is an omitted variables bias problem. That is, we want to identify factors that explain differences in spending that are neither associated with legitimate cost differences nor with differences in outcomes, such that we can set those factors to a constant level when

[7] We prefer to use a relatively simple cost model that is easy to interpret and is easily translatable to policy. Additional quadratic (squared) terms or other interactions were explored to check for nonlinear relationships or whether certain relationships varied in conjunction with the level of another cost factor. For example, we examined whether there were differences in cost associated with concentration of low-income students, whether special education costs differed by school low-income rates, or whether special education costs were higher in smaller schools. In most cases, the squared terms and interactions were statistically insignificant (this was the case for low-income proportion squared, the interaction between students with disabilities proportion and school size, and the interaction between students with disabilities and low-income proportions). The only squared term we tested that proved significant was a squared term for English learner proportion, which suggested that the cost of serving additional ELs is higher at low levels of ELs than at high levels of ELs. However, we felt the increased precision in costs associated with including such an interaction was not worth the additional complexity.

projecting cost estimates. In the case of spending from state sources and median age of the population, we set these variables to average. In the case of the charter school indicator, we set this to zero such that all cost predications are at the level of district schools.

However, there will always likely remain some variation in spending in relation to outcomes that are either random, such as an unexplained variation in either the spending or outcome measures, or nonrandom but not captured by the measures available that were included in the model.

Predictable Component

The predictable share of inefficiency is that share of variation in spending that can be at least partially explained by our indirect predictors of inefficiency. Using our Delaware-specific cost model, we can test the influence of the efficiency measures on predicted per-pupil costs. The efficiency measures include a measure of the share of districtwide spending from state sources, a measure of the age of the population within the zip code where a school is located, and an indicator for whether a school is a charter school.

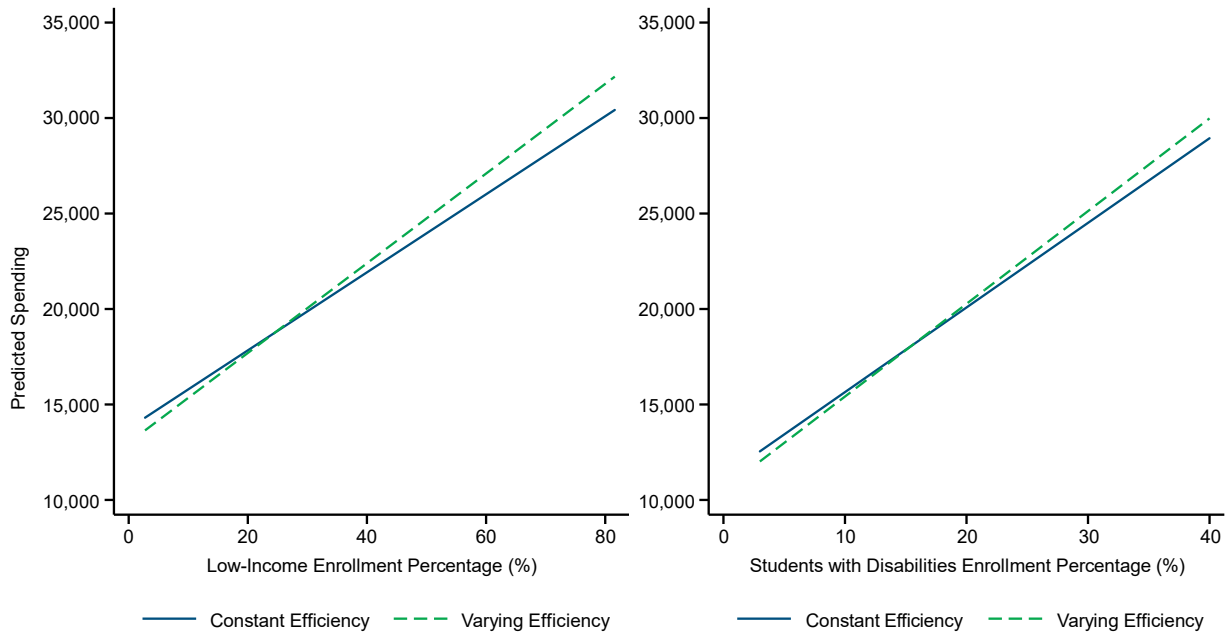
If we generate spending predictions by allowing these factors to vary, as they presently do across schools, the predictions produced would include differences in efficiency that are a predictable function of these factors (i.e., projecting spending by including rather than equalizing inefficiency). We can compare those spending predictions to spending predictions generated if we constrain all districts to assume a constant level of efficiency characteristics (i.e., if we expect districts to produce common outcomes at the same levels of efficiency).

Exhibit C2 compares projections holding efficiency measures constant versus projections allowing efficiency measures to vary. The figure shows that controlling for efficiency does little to change the relationships between predicted spending and the percentages of students from low-income families or who have disabilities. If anything, districts with larger shares of students from low-income families and students with disabilities tend to be slightly less efficient in their production of outcomes, at least given the outcomes under consideration. This means that their estimated spending levels are lower when holding efficiency predictors at constant values than when spending efficiency varies.

We urge caution in use of the term *inefficiency,* which has a quite narrow definition in the context of cost-function analysis. It refers to expenditures that do not translate directly to differences in the measured outcomes included the model. Our use of inefficiency in this narrow sense does not necessarily imply “wasteful spending.” Schools exhibiting less efficiency from a statistical perspective may be using resources in important and valuable ways that do not contribute to the outcomes observed in our analysis. For example, competitive athletics

programs or music and arts programs may be valuable to the school and community but do not necessarily have great influence on the outcomes we observe.

Exhibit E2. Predicted Costs Per Pupil Comparing Predications That Hold Efficiency Variables Constant or Allow Them to Vary (2022)

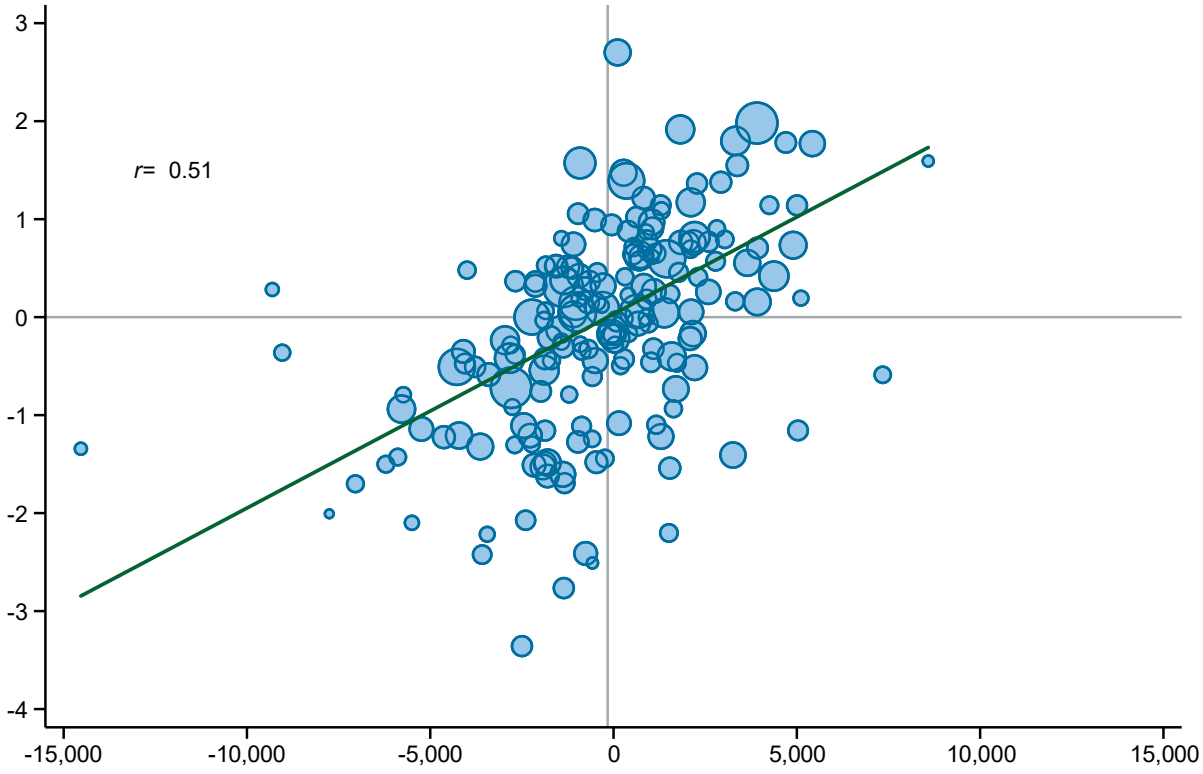


Note. Lines represent best fit lines. Constant efficiency estimates fix efficiency variables at the average. Varying efficiency estimates allow efficiency to vary across districts at their observed levels for efficiency variables. Calculations based on data from the Delaware Open Data Portal, Delaware Department of Education, and U.S. Department of Education.

Error Component

Exhibit C3, also included in the main body of the report as the 2022 panel of Exhibit 21, shows the relationship between spending gaps—relative to the cost, at average predictable efficiency of producing average outcomes—compared with existing outcome gaps. A clear pattern exists in that schools with large spending gaps have larger outcome gaps, and schools that spend more than needed to achieve average outcomes tend to achieve above-average outcomes.

Exhibit E3. Outcome Gaps Versus Funding Gaps (2022)



Note. The gray lines show statewide averages of both variables. The enrollment-weighted correlation coefficient is represented by *r*. Calculations based on data from the Delaware Open Data Portal, Delaware Department of Education, and U.S. Department of Education.

That said, the pattern does not follow a perfect diagonal line intersecting at zero on both the *x* and *y* axes, nor do all of the plotted districts lie in the lower-left and upper-right quadrants. Rather, there are also districts in the upper-left and lower-right quadrants, and there is variation across districts in all quadrants. This means that even at the same estimated spending gap (i.e., more or less spending than predicted adequate cost), there are differences in the distance between districts' actual outcomes and the outcome target.

This variation can encompass several factors and should not be overinterpreted. Here, we describe three of the most likely factors that may influence these estimates: remaining omitted variables bias, measurement error in inputs or outcomes, and real differences in inefficiency.

- **Remaining Omitted Variables Bias.** First and foremost, cases in which districts have lower spending than needed to achieve average outcomes but higher-than-average outcomes (see upper-left quadrant), or vice versa, might be a result of unobserved important differences in costs, such as variables that are unmeasured or not included in the model. These could be either in terms of student characteristics or other exogenous environmental factors that we

do not observe. Our models are relatively simple and clearly do not capture everything that might affect cost differences across schools. It would be implausible to determine the perfect, complete model for all schools and districts. Nonetheless, the models seem to do a reasonable job at predicting cost variation in relation to outcomes and thus they offer an advancement for guiding the distribution of state dollars.

- **Measurement Error in Inputs or Outcomes (systematic or random).** Outcome measures aggregated at school or district levels, like with state assessment scores, contain measurement errors. That is, our models may not capture random variation. There also may be differences in the measurement of relevant expenditures across schools and districts either because of reporting irregularities or different relationships between district and school organizational structures and the provision of services to students. For example, in constructing school-level estimates of spending, some portion of spending represents districtwide or central office services and functions. A choice must be made in how to allocate those central dollars to schools so that all dollars are represented in the data. However, the actual use of those resources across schools may not precisely reflect how they were assigned to schools within the data.
- **Real Differences in Inefficiency.** It is reasonable that any two schools or districts serving otherwise similar student populations and facing similar external cost pressures might achieve different outcomes even while spending the same amount of money. The same amount spent while achieving more on the measured outcomes would indicate greater efficiency in producing those measured outcomes. Ideally, we would have complete models with sufficiently accurate and precise measures of inputs and outcomes to isolate these real differences in inefficiency. But as mentioned earlier, we must be careful to understand what we mean by differences in efficiency. Some schools or districts may spend more to achieve the same measured outcomes because they are spending on other things valued by their communities or constituents. These expenditures may not translate directly to shifts in reading and mathematics scores or attendance and graduation rates and thus would be "inefficient" per the model specifications herein.

Although there may be legitimate differences in the relative efficiency of schools or districts, we suspect that some of the variations seen in these scatterplots (e.g., districts in the upper-left and lower-right quadrants) is attributable to the first two issues noted here: omitted variables bias and measurement error. Indeed, these models are imperfect and incomplete, but they can still provide reasonable broad policy guidance regarding the relative adequacy of school spending toward achieving common outcomes.

Limitation of the Cost Model Estimates

There is a limitation of the cost model estimates. Specifically, they provide guidance regarding the general levels of funding increases that would be required to produce measured outcomes at a certain level, assuming districts can absorb the additional resources without efficiency loss; that is, assuming that efficiency of outcome production remains constant. This is not always the case: districts may use additional revenues for all types of programs or services. This additional spending may be inefficient only in the sense that it does not contribute to improving the educational outcomes we measure. That is not to say this spending does not help districts achieve other goals important to the community or society in general. For example, spending on sports programs may be desirable but does not necessarily increase statewide accountability test scores. Cost models, therefore, are limited by the outcome measures employed within them.

Despite this limitation, cost model estimates, as well as the recommendations of professionals and expert panels, can still provide useful, meaningful information to guide the formulation of more rational, equitable, and adequate state school finance systems.

More Detail and Consideration

Here we provide a reporting of technical details from our models and some insights on the decision process involved in selecting a final model. Cost model estimation, including model selection for policy guidance, is a lengthy iterative process that involves balancing technical and statistical concerns with practical concerns regarding usefulness for guiding policy. It is rare to find an ideal cost model that both yields perfect statistical diagnostic features and reasonable findings and projections to guide policy. This is partly why we use both regional- and state-specific models: (a) to better understand the patterns of variation in needs and costs across districts and schools, (b) as possible measures for evaluating costs across districts and schools, and (c) as potential measures to translate cost models into actionable policy.

Steps in Identifying a Model

- Identify a model in which the main regression model describing spending yields estimated coefficients on the major cost factors that are both in the expected direction and of reasonable magnitude.
- Identify a model wherein the collection of instruments selected are sufficiently valid; that is it can predict a significant share of variation in the potentially endogenous outcome measure as indicated by Partial F > 10. As the same time, the model does not overidentify; that is, it does not belong in the main equation describing spending as indicated by Hansen J ($p > 0.10$).

- Identify a model wherein some additional variation in spending is captured by one or more measures related to fiscal capacity, local public monitoring, and/or competition density; that is, it includes indirect inefficiency controls.

Instruments and Efficiency Controls

To identify those factors that are exogenous—outside the control of the observed district or school—and can statistically influence outcomes of the observed district (i.e., are "valid") but, at the same time, are measures that should be excluded from the main cost model (e.g., second stage regression) involves both conceptual and statistical considerations. Conceptually, a long line of similar studies by Duncombe and Yinger (2004, 2011) and Baker (2011) have used measures of the characteristics of surrounding districts, including demographic, economic, and even outcome characteristics of those districts. The idea is that the outcomes of neighboring districts may place competitive pressure on the observed district. These "over the fence" comparisons may influence outcomes beyond other discrete measures of the district itself that are included in the main model. Our regional model uses the median housing unit values (i.e., natural log) and the proportion of students who are Hispanic for all other districts in the same regional labor market; this is a geographic delineation from the extended National Center for Education Statistics Comparable Wage Index produced by Dr. Lori Taylor.[8] Our Delaware-specific model replaces the racial demographic measure with a measure of the share of a school's enrollment that is female (i.e., rescaled to logit scale) and the share of the population that is 0 to 4 years old within the same zip code of the school.

Below are the second stage—main—model results for our Delaware-specific model and regional model. Per our earlier discussion, the vast majority of coefficients across the models are statistically significant and in the expected direction, though there are a handful of results that differ between the two models. Both models find each student-need factor to be a significant driver of higher costs to achieve common outcome goals. Both models find that higher outcome goals cost more than lower ones. And both models find that smaller school districts or schools face higher per-pupil costs. The models differ somewhat in their findings regarding costs by grade-range distribution, and the state model includes a measure of vocational enrollment share that is positive and significant.

Importantly, though not vitally, both models perform well on traditional statistical tests, including selection of instruments. Instruments in each case explain significant variance in the endogenous outcome measure (i.e., as indicated by Partial F statistics > 10), and neither model suffers from overidentification (i.e., Hansen J *p*-values >.05). Efficiency factors in the regional model do not seem to predict much variation in spending that is unassociated with outcomes,

[8] See *Extending the NCES CWI*, https://bush.tamu.edu/research/taylor-cwi/.

although this version of the regional model also includes a state fixed effect. That is, we subtract out differences in state averages in the input and outcome variables, which for the most part serves to remove some measurement differences in spending and outcomes that exist between states that are not fully corrected in the data. As a result, the regional model primarily picks up cost differences associated with each cost factor, across districts within states and around their own state averages. The state fixed effects indicate that, on average, for equivalent outcomes, New Jersey, Pennsylvania, and West Virginia spend more than Delaware; Virginia spends less than Delaware; and Maryland spends approximately the same amount as Delaware. This translates that either (1) per-pupil costs of common outcome goals are lower, or (2) Delaware and Maryland are more efficient in their production of outcomes, or (3) there are simply measurement differences in the spending and outcome data that yield these patterns.

Additional Exhibits

Cost Models

Exhibit E4. Delaware School-Level Education Cost Model Estimates (2018 to 2022)

Predictor Variable	Regression Coefficient	Standard Error
Outcome Factor Score	0.143***	0.0406
Student Needs		
% Low income	0.518***	0.129
% Students with disabilities	1.156***	0.150
% Complex special education	1.399***	0.314
% Black	0.149	0.0804
% English learners	0.258**	0.0993
Program Distribution		
Vocational/technical share	1.534***	0.114
Middle grades share	-0.0114	0.0185
High school share	0.0380	0.0351
Geographic Location / Scale		
Population per Sq Mile (ln)	0.0222***	0.00646
Enrollment <300	0.269***	0.0396
Enrollment 300 to <450	0.136***	0.0162
Enrollment 450 to <600	0.0862***	0.0151
Enrollment 600 to <800	0.0493**	0.0158
Efficiency Factors		
Median age by 2027 by zip code	-0.00334***	0.000824
District % revenue from state	-1.047***	0.0960
Charter school	-0.0859***	0.0139
Geographic cost (CWIFT)	0.0987	0.150
Year		
2019	0.0359**	0.0115
2020	0.0606***	0.0117
2021	0.101***	0.0127
2022	0.135***	0.0149
Constant	9.535***	0.284
N	948	
R^2	0.714	

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Partial F of excluded instruments = 13.60. Excluded instruments: Female student percentage (logit), percentage of population between 0 and 4 years old. Hansen J p-value = 0.84.

Exhibit E5. Regional District-Level Education Cost Model Estimates (FY 2009 to FY 2019)

	Regression Coefficient	Standard Error
Outcome Index	0.622***	(0.0996)
Student Needs		
Census poverty share (adj.)	0.860***	(0.172)
Students with disabilities (state centered)	1.377***	(0.154)
% English learner	0.928***	(0.158)
% Black	0.595***	(0.0678)
Program Distribution		
% Prekindergarten	1.093***	(0.215)
Middle grades share	0.139	(0.114)
High school share	0.291***	(0.0575)
Geographic Location / Scale		
Population per sq mile (ln)	-0.0300***	(0.00646)
Enrollment <=100	0.862***	(0.207)
Enrollment 101 to 300	0.290***	(0.0273)
Enrollment 301 to 600	0.141***	(0.0188)
Enrollment 601 to 1,200	0.0779***	(0.0117)
Enrollment 1,201 to 1,500	0.0293*	(0.0135)
Enrollment 1,501 to 2,000	0.0305*	(0.0132)
Efficiency Factors		
% Population 5 to 17 years old	0.180*	(0.0848)
Housing value ratio to labor market mean	-0.0693*	(0.0270)
Herfindahl Index	0.488	(0.444)
State Fixed Effects		
Maryland	-0.0132	(0.0412)
New Jersey	0.242***	(0.0364)
Pennsylvania	0.111**	(0.0343)
Virginia	-0.202***	(0.0377)
West Virginia	0.135**	(0.0434)
NCES CWI	0.332***	(0.0801)
Year (centered)	0.0237***	(0.00115)
Constant	8.965***	(0.0960)
N	13254	
R^2	0.557	

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Partial F of excluded instruments = 46.31. Excluded instruments: median housing value in neighboring districts (ln), Hispanic student percentage in neighboring districts. Hansen J *p*-value = 0.053.

Weights Models

Exhibit E6. Weights Estimation Model Based on the Regional District-Level Education Cost Model

Cost Factor	Weight
Student Needs	
Census poverty share (adj.)	1.886
Students with disabilities (state centered)	4.058
% English learners	2.593
% Black	1.834
Percentage in Grades 9 to 12	1.258
District Enrollment	
Enrollment <=100	2.297
Enrollment 101 to 300	1.375
Enrollment 301 to 600	1.163
Enrollment 601 to 1,200	1.087
Enrollment 1,201 to 1,500	1.032
NCES CWI	1.339
Base Cost	5,902.9
N	13,943
pseudo R^2	0.956

Exhibit E7. Comparing Original Cost-Based Weights to Weights Estimated When Excluding Transportation Spending from State Sources

	Original Model	Excluding State Transportation
Student needs		
Low-income proportion	1.81	1.81
Students with disabilities proportion	3.34	3.42
Students with complex disabilities proportion	3.75	4.14
English learner proportion	1.15	1.14
Programming/grade range		
Vocational/technical units proportion	4.58	4.12
Middle school enrollment proportion	0.99	0.99
High school enrollment proportion	1.04	1.05
Population density		
300 to <800	1.03	1.03
800 to <2,000	1.05	1.06
2,000 to <5,000	1.06	1.07
>=5,000	1.08	1.10
School Enrollment		
<=300	1.29	1.29
300 to <450	1.12	1.13
450 to <600	1.07	1.08
600 to <800	1.04	1.05
Geographic cost (CWIFT)	1.38	1.35
Constant (or Base)	10,074	9,627
Number of school-by-year observations	948	948
Number of unique schools	192	192
Pseudo R^2	0.979	0.979

Exhibit E8. Comparing Cost-Based Weights From the Delaware Model to Implicit Weights

	High-Outcome Weights	Actual State and Local Spending
Student needs		
Low-income proportion	1.81	0.98
Students with disabilities proportion	3.34	2.02
Students with complex disabilities proportion	3.75	3.95
English learner proportion	1.15	1.07
Programming/grade range		
Vocational/technical units proportion	4.58	6.01
Middle school enrollment proportion	0.99	0.98
High school enrollment proportion	1.04	0.97
Population density		
300 to <800	1.03	0.99
800 to <2,000	1.05	1.08
2,000 to <5,000	1.06	1.13
>=5,000	1.08	1.15
School Enrollment		
<=300	1.29	1.30
300 to <450	1.12	1.18
450 to <600	1.07	1.10
600 to <800	1.04	1.03
Geographic cost (CWIFT)	1.38	2.40
Constant (or Base)	10,074	10,385

Appendix F. Professional Judgment Panel

Panelist Recruitment Process and Panelist Biographies

Recruitment Process for the Professional Judgment Panels

The study team solicited nominations for outstanding educators from organizations across the state. Emails to solicit nominations were sent to all public school district superintendents and charter school leaders in Delaware. In addition, we solicited nominations from a number of education-focused organizations across the state, including Delaware Business Roundtable Education Committee, Delaware Charter Schools Network, Delaware Hispanic Commission, Delaware State Education Association, First State Educate, Governor's Advisory Council for English Learners, La Esperanza, La Plaza, the Latin American Community Center, Redding Consortium for Education Equity, Rodel Foundation of Delaware, Vision Coalition of Delaware, and Wilmington Center for Education Equity and Policy.

Our solicitation effort requested nominations for the following 10 panel positions, with the goal of having each type of position represented on each panel: elementary, middle, and high school teachers; elementary, middle, and high school principals; a superintendent; an English language (EL) specialist; a special education specialist; and a school business official.

Selection Process

As a key part of the selection process, the study team outlined the desired criteria for professional judgment panelists (PJPs) and developed a corresponding scoring rubric for evaluating candidates. Points were given to candidates for having an advanced degree, in addition to years of relevant work experience (more than 15 or 30 years of experience), recognition in the field via an award (such as Teacher of the Year), experience working with disadvantaged students, and demonstrated educational leadership and/or effectiveness. Additionally, points were awarded to those candidates who had previously worked in different relevant roles and could provide insights from various lenses; for example, a current elementary school principal who previously worked as a general education teacher and could provide insights from both teacher and principal perspectives. Each nominee was scored according to these criteria.

To ensure that many perspectives were represented in the process, the study team also sought diversity on panels in terms of panelist race/ethnicity, gender, and whether they worked in a traditional public district or charter school setting. Based on these criteria, a set of first-choice candidates was invited to participate in the panels. When panelists were not able to accept the invitation, the study team invited candidates with the next highest scores.

Panelist Bios

New Castle County Panelist Biographies

Dawn Alexander

Dawn Alexander is an early childhood teacher and specialist with eight years of experience in her current role. She has worked in Delaware public schools for 28 years. Dawn has served on building-level, district, local, and statewide teams, committees, and boards focused on utilizing data to inform creation or modification of programs and systems to improve outcomes for children and families in traditionally underserved communities. Dawn is also the coordinator for the early childhood special education program for Colonial School District. She is responsible for designing, implementing, evaluating, refining, and sustaining a wide variety of program components.

As a member of the school and districtwide strategic planning, instructional leadership, and MTSS teams, Dawn has extensive experience with utilizing classroom observations, implementing data collection and analysis, and collaborating with parents and staff to gather information to drive instruction and programmatic decisions. Dawn holds a number of district leadership positions: district strategic planning team member, preschool leadership team member, MTSS team member, instructional leadership team member, and equity team member. Dawn has received a number of awards and honors for her dedicated work including University of Delaware's Excellence in Education Alumni Award (2018) and Delaware Governor's Award for Excellence in Early Childhood (2016).

Anne Anastasia

Anne Anastasia has been a multilingual learner (MLL) coach in Red Clay Consolidated School District for the last eight years. She has worked in Delaware public schools for 30 years. Anne's duties include working with English language development and content area teachers to support the MLLs in their buildings. Anne has worked with the afterschool English learner program in Red Clay and managed the English learner afterschool and English learner summer school programs in previous positions.

Anne frequently reviews data on MLL attendance and academic achievement and shares it with English language development teachers, principals, and some students one-on-one. She also particularly concerned with students' postsecondary trajectories and understanding of the options available to them. This includes working towards a better understanding of the current pathway system, what course options are available to students, and what postsecondary opportunities these options provide.

Scott Duncan

Scott Duncan is a high school English Language Arts teacher with 13 years of experience in his current role. He has worked in Delaware public schools for five years. Scott was part of the original staff at Odessa High School, which opened in 2020. He has served as the English Language Arts Department Chair since the opening of the school, helping with the curriculum selection process. Now in its third year, Odessa High School has from approximately 200 students to 900 and the English Language Arts Department has grown from a staff of two to nine. Scott is also active in several district level committees such curriculum selection and grading.

Before working in Delaware, Scott taught for eight years in southern Indiana at Columbus East High School and almost five years in the Appoquinimink School District at Middletown and Odessa High Schools. During his eight years in Indiana, he developed the high school journalism program. He built the program, similar to a career pathway, from five students to 70 students by the time he left for Delaware. The journalism program was co-curricular with four courses and three extracurricular activities: newspaper, yearbook, and news website. In Indiana, he served as vice president of the local teacher association for three years.

Jill Floore

Jill Floore is the Chief Financial Officer (CFO) in the Brandywine School District. She served in the same role in Red Clay Consolidated School District for 16 years. She was voted School Business Manager of the Year in recognition of her dedicated work. Jill is a member of the Delaware Association of School Administrators (DASA) legislative committee, working with members of from all departments – curriculum and instruction, operations, human resources, and federal programs – to craft legislation and improvements to educational funding. She has worked with the Delaware State Education Association, Delaware legislators, parents, and teachers, collaborating on strategic planning processes, conducting operating and capital referendum campaigns. She is a parent of three children who attend Delaware public schools.

In her tenure as CFO in both districts, Jill has served on a number of statewide committees aimed at school finance and improving student outcomes, including serving as the Co-Chair of the Wilmington Education Improvement Commission (WEIC) Finance Committee. The WEIC Finance Committee provided a comprehensive overview of Delaware education funding focused on needed improvements, including a recommendation for supplemental funding for English learners (ELs) and those from low-income backgrounds, which later became Opportunity Funding in the state budget. She created and managed specialized funding for students with disabilities and coordinated comprehensive allocations of federal funds from Race to the Top, ARRA, ESSER and ARP. For 15 years she has been a member of the New Castle County Financial Advisory Council.

Tika Hartsock

Tika Hartsock is a special education teacher with five years of experience in her current role. She has worked in Delaware public schools for 10 years. She served as secretary for the Special Education Strategic Plan Advisory Council.

Education was a career change for Tika that has afforded her the opportunity to see education through a diverse lens. She has taught early childhood, elementary, middle, and high school in charter, district, private, and alternative schools. Variety in professional experiences has allowed Tika to identify common trends in education in Delaware and assist in problem solving to increase student achievement.

Jacqueline Hunt

Jacqueline Hunt is an elementary teacher with three years of experience in her current role. She has experience working in a broad range of education positions: prek-8 Spanish teacher, a high school biology teacher, college academic advisor, a preK-8 STEM teacher, and preK-8 technology teacher.

Jacqueline has improved the outcomes of her students, many of whom are English learners and from disadvantaged backgrounds. She works to provide a safe space for learning and growing by nurturing students' natural curiosity and love of learning. Jacqueline has taken leadership positions in multiple school events including Hispanic Heritage celebration, Fire Safety Month, and Black History Month. She also serves on the Justice and Belonging Committee and as grade-level team leader.

Jennifer Klima

Dr. Jennifer Klima is a special education teacher with five years of experience in her current role. She has worked in Delaware public schools for 11 years. Dr. Klima has over 20 years of leadership experience in various capacities within education, including experience with school-community partnerships and teacher networks. Dr. Klima has served as a leader in various capacities, including as a member of school and district instructional leadership team, participant in the RELAY Leadership Institute, and as school testing coordinator and student-based team (SBT) coordinator.

Dr. Klima has extensive experience teaching students of all ages and populations, including multilingual learners, special education students, and those from historically underserved communities. During her time as a classroom teacher and reading specialist, she used data-informed differentiated instruction to meet the diverse needs of learners. She collaborated with special education and related services colleagues to develop, monitor, and adjust individual educational plans (IEPs) for students. As a mentor teacher and instructional coach,

she developed professional development programs and modeled lessons aimed to promote teachers' pedagogical knowledge about literacy instruction and the proper implementation of high-quality instructional materials. She managed the literacy multi-tiered support system (MTSS) school-wide process which included using data-informed instruction to organize student groups. She collaborated with teachers and specialists to plan research-based instructional practices, monitoring systems, timing, and analysis efficacy of student groups.

Kelly Logan

Kelly Logan is the district MTSS coordinator in Christina School District with three years of experience in her current role. She has worked in Delaware public schools for 29 years with 15 years as a classroom teacher. Kelly has previously worked as a district level special education coordinator. Kelly has served in various district level roles and on districtwide committees: district strategic team member, member of NACDD's Supports to Advance Emotional Well-Being in Schools Year 1 Learning Collaborative Cohort, PBIs district cadre, district 504 team member, district level care team member, district SEWB team member, team leader and content chair, and district transition specialist.

In her current position, Kelly has focused on improving student outcomes by strengthening the MTSS framework by focusing on MTSS through an equity lens. In 2022, she collaborated with the state Department of Education and external consultants to develop an MTSS action plan for Christina School District. As district special education coordinator, she worked with students with intense emotional or behavioral needs who needed residential placements. Kelly ensured these students had necessary services and support, including working with various state agencies such as the Division of Preventative and Behavior Health and Division of Substance Abuse and Mental Health.

Margie Lopez Waite

Margie Lopez Waite is a founding member, former Head of School, and now CEO of Las Americas ASPIRA Academy, a charter school that serves a large population of students of color from low-income families and English Learners. She has 15 years of experience in her current role and has worked in Delaware public schools for 18 years. She has been involved with every aspect of school operations and instruction.

Mike Matthews

Mike Matthews is a special education teacher and service provider with four years of experience in his current role. Mike has worked in Delaware public schools for 13 years, previously working as an elementary teacher and as an English teacher.

Mike has an interest in improving outcomes for students. For the past ten years, he has been an advocate for education funding that meets the diverse learning needs of students. Centering student experiences is key to the work that he does. Working with students with exceptional needs has given Matthews unique insight into how Delaware's education system functions for those students.

Melodie Miller

Melodie Miller is a special education teacher with seven years of experience in her current role. She has worked in Delaware public schools for eight years. Melodie has also served on the educator diversity workgroup for the Rodel Teaching Network, a member of Delaware Tech's Academic Advisory Committee, and as a consultant to Wilmington University's Education Department on their diversity recruitment initiatives.

As a general/special education teacher in a self-contained inclusion classroom, Melodie brings professional experience in working with students with disabilities, English learners and those from low SES backgrounds. She is a certified Responsive Classroom teacher trainer, successfully implementing these strategies in her classroom. Melodie was the 2022 Townsend Elementary Teacher of the Year. She served as grade level chair for six years, was a Delaware Teacher's Institute Research Fellow, and served as the membership chair of the Kappa Delta Pi National Honor Society in Education.

Donald Patton

Donald Patton retired from his principal position in Christina School District in 2020 after working in Delaware public schools for 26 years. During his tenure, Donald celebrated four consecutive years of double-digit academic growth in all subgroups including special education. He implemented districtwide afterschool and Saturday programs. Donald was integral to the revision of Kirk Middle School's special education programs to ensure full inclusion and positive academic outcomes.

Donald was responsible for implementing the following districtwide programs: AVID, middle school uniforms, and portfolio conferencing. He was selected to lead an urban public middle school in the city of Wilmington. After first year his leadership, the school reported 50% reduction in suspensions and 97% standardized testing attendance. Donald has received a number of awards and his honors for his dedicated work: the Lieutenant Governor's Award of Excellence (2007), Super Stars in Education (2007), and the Lieutenant Governor's Award for Parental Engagement (2010). He served as an AVID national consultant and district director from 2004 to 2019.

Domenic Pisano

Dr. Domenic Pisano is the coordinator of visual and performing arts and physical education in the Brandywine School District. He has worked in Delaware public schools for 20 years. Dr. Pisano has over 25 of experience as an innovative teacher, leader, conductor, clinician, author, educational consultant, media producer, classroom technology expert, academic committee member, and curriculum designer at the local, state, and national levels.

Dr. Pisano's core administrative strengths are building educational coalitions, finding funding opportunities, long and short-term project management and sustainability, community and media outreach, educational initiative design and implementation, professional development facilitation, and talent recruitment. He has received a number of awards and honors for his dedicated work: 50 Directors that Make a Difference School Band and Orchestra Magazine (2008), Brandywine School District Secondary Spotlight Teacher of the Month (2006), and Indiana University of Pennsylvania Distinguished Alumni Ambassador (2002).

Nichole Silvers

Nichole Silvers is a special education teacher and service provider who has worked in Delaware public schools for 12 years. She has also served as an international educator, teaching science to fluent English and English learners. She has a demonstrated record of implementing specialized programming: after school tutoring program, special education programs, extended school year programs, and math curriculum development. She has demonstrated leadership accomplishments in student behavior, discipline, wellness, academic achievement and improving attendance during her tenure as an educator. Nicole has received honors for her work as an affinity group case manager.

Sarah Stearns

Sarah Stearns is a special education teacher with six years of experience in her current role. She has worked in Delaware public schools for seven years. Sarah is currently in her second year as lower school team lead.

Sarah serves in a Title I school and takes pride in being able provide children with a safe and joyful environment them to grow. For the last three years, she has been the kindergarten through grade 2 special education teacher in a classroom with students with complex academic, social, and behavior needs. Collaborating with two paraprofessionals, Sarah and her colleagues work as a team to support students with complex needs, adapting as necessary to ensure their success. Sarah has been a strong advocate for social-emotional programs at her school.

Beth Twardus

Beth Twardus has served as a special education teacher in a high needs school in Delaware for 16 years. She has focused on literacy in the math classroom, positive communication, and equity practices, all of which have improved the outcomes for both general and special education students. Beth has advocated for increased support for teachers with a special education case load. She has provided staff professional development on equity and has served on many district level committees.

Beth has expanded her leadership capacity by participating in Math Aspiring Leadership. This has helped improve math instruction in her and colleagues' classrooms. She has served as mentor teacher for several teacher candidates. As a team leader, Beth routinely discusses attendance, academic achievement, and discipline reports to collaboratively discern with colleagues the necessary supports for student success. Beth was Colonial District Teacher of the Year (2023). She has served as math department chair, an 8th grade team lead, and as a member of the Colonial Education Association Executive Board.

Alena Warner-Chisolm

Alena Warner-Chisolm is a secondary education teacher who has worked in Delaware public schools for 14 years. Throughout her career, Alena has served multilingual learners, students from low SES backgrounds, and those who struggle academically. She collaborated on a grade level team whose student earned the highest Smarter Balanced and I-Ready scores in the history of the district. Alena has created and regularly facilitates site-based afterschool programs to extend and support student learning.

Alena developed and implemented a schoolwide Tiers 1, 2, and 3 cultural responsive implementation framework that significantly lowered referrals and increased student academic engagement. She has served as the grade 8 team lead and Delaware Stars program coordinator. Alena has been a four-time Teacher of the Year nominee.

Whitney Williams

Dr. Whitney Williams is a principal with four years of experience in her current role. She has worked in Delaware public schools for 26 years. Dr. Williams has a demonstrated record of improving outcomes for students and their families from high needs communities. In 2019, she led the opening of a Christina School District early education center in the city of Wilmington. There she created a positive school climate and solid recruitment and retention of a diverse staff. She oversees a specialized early education program inclusive of children with disabilities and offering itinerant services. Under her oversight, the early education center established partnerships with the Dual Generation Center at Stubbs Elementary, the Wilmington Early Care and Education Council, and community early learning providers, including the United Way of

Delaware and Children's and Families First. Wrap around services provided at the center support family wellness and children's success.

Dr. Williams received the Women Leading Delaware Education Conference Dedication Award (2022). She earned an AASA Howard University Urban Superintendent Academy Certificate (2022) and she serves on district's strategic planning committee leading recruitment and retention for a diverse pool of educators.

Kent County Panelist Biographies

Tania Alexander

Tania Alexander is the District Officer of Equity and School Improvement in Capital School District with two years of experience in her current role. She has worked in Delaware public schools for eight years. In her current role, Tania works with schools to develop and implement action plans that address academic disparities among English learners, students with disabilities, and those from low SES backgrounds. She works with the teaching and learning team to plan afterschool and summer activities for students. Tania co-chairs the district equity committee and is the point of contact for discipline in the district. She is currently working on reviewing the district's discipline guide to align it with restorative rather than punitive practices.

Michelle Allman

Michelle Allman is the director of special services for the Lake Forest School District with five years of experience in her current role. She has worked in Delaware public schools for 15 years. Michelle oversees districtwide special education and multilingual learner programs. She leads monthly PLCs to provide guidance and professional learning for teachers, coordinators, and related service members. Prior to her role at Lake Forest School District, Michelle was the director of special services in Laurel School District and assistant principal in Indian River School District. As an English Language Arts teacher, she also co-taught ELL and special education classes.

Additionally, Michelle spent seven years teaching internationally. She taught in Mexico, Honduras, the British and US Virgin Islands as a classroom teacher. For five years, she taught in summers at a language institute boarding school in Switzerland and England. Because Michelle was once a multilingual learner and lived abroad, she understands the complexities of learning a new language while acclimating to a new culture.

Amber Augustus

Dr. Amber Augustus is a principal at North Smyrna Elementary School with three years of experience in her current role. She has worked in Delaware public schools for 18 years. Dr. Augustus and school staff works directly with families and special services office to improve student outcomes and remove barriers to learning. The school has implemented a social-emotional learning program to support the development of positive relationships and emotional regulation. The school's administrative team works closely with the district administrators to support positive student behavior.

Dr. Augustus has overseen the district's elementary Levels B and C settings. She also oversees the district's early childhood and K-3 Spanish immersion program. Dr. Augustus has received a number of awards: Delaware State Teacher of the Year (2012), Smyrna School District Teacher of the Year (2011), California Casualty Award for Teaching Excellence (2013). She has served as an NEA Global Learning Fellow in Brazil, a district K-12 math specialist, and member of the Delaware Professional Standards Board.

David Blowman

David Blowman is a school business official with five years of experience in his current role. He has worked in Delaware public schools for 25 years. David has experience in school finance, policy, and reform focused on improving educational outcomes for students in underserved communities. He has held multiple leadership roles throughout his 25 years in public education and is currently a board member for the Delaware Charter School Network. He has previously worked as Deputy Secretary of Education at the Delaware Department of Education, Chief Financial Officer in the Brandywine School District, and Chief Financial Officer at the Community Education Building.

Danyel Burgett

Danyel Burgett is a secondary general education teacher who has worked in Delaware public schools for three years. Danyel teaches graphic design at Dover High School. The school serves a diverse student population with economically disadvantaged students, students with disabilities, and English learners. Danyel is a leader in her school when it comes to work-based learning and career and college readiness. She established and currently advises the school's digital media team where students run a graphic design, photography, and video production business. She serves as Technology Student Association advisor.

Danyel is an expert on military students. She was the principal of a school in Germany that served military children. She has studied military students in Delaware and helped bring the Purple Star School recognition to Delaware through her action research. Danyel lived in Germany for eight years and worked with students who hailed from across the globe. This has

afforded here a unique perspective on K-12 education. Danyel has been nominated for Teacher of the Year for the last three years.

Charles Christman

Charles Christman is a secondary general education teacher who has worked in Delaware public schools for five years. When Charles began teaching in January 2018, he worked to reinvigorate the school's heating, air conditioning, and ventilation (HVAC) career and technical education program. In five years, he transformed the program to a more expansive agricultural power and engineering program and increased the roster of enrolled students threefold.

Students in his CTE program work on significant projects with the local fire departments and community officials. He recently acquired a cooperative student experience with Eagle Group. Charles developed programming in accordance with NAPE standards. As a result, there are 12 female welders currently enrolled, 8.6% compared to 6.1% nationally. He advises an afterschool program, a combination of FFA and 21st Century. Charles has received numerous awards: prior military service awards, Dover High School Teacher of the Year (2023), and district nominee for Superstars in Education award (2023).

Kimberly Cole

Kimberly Cole is an achievement liaison teacher with ten years of experience in her current role. She has worked in Delaware public schools for 20 years. Kimberly's goal is to promote student achievement, teacher quality, and parental involvement. Kimberly is a member of the district mathematics and English language arts instructional teams. Both groups routinely use data to drive decision making about the professional supports offered to teachers to ensure student learning and academic success. Kimberly has worked to rebuild school-to-home partnerships by designing creative family events that afford parents opportunities to learn strategies to support their children. Kimberly has served on the district humanities council and the American Reading Company leadership series team.

Kathleen Cooke

Kathleen Cooke serves as the crisis prevention intervention leader for Smyrna School District. She has ten years of experience in her current role and has worked in Delaware public schools for 20 years. Kathleen has previous experience working as a special education teacher, special education specialist, and instructional and assistive technology specialist.

Kathleen has demonstrated experience implementing year-round special programs. She has served as district Restorative Practices leader and district testing coordinator/facilitator. Kathleen has been a member of the MTSS district leadership team, the school district's

Superintendent Leadership Teacher Advisory Council, Delaware State Education Association Executive Board. Kathleen received the Kingsville Elementary Teacher of the Year Award (2004).

Sara Croce

Dr. Sara Croce is a school business official who has worked in Delaware public schools for eight years. Dr. Croce has spent her time in public education developing vast knowledge of school district finance and district operations. In her doctoral dissertation, Dr. Croce studied the Delaware public education funding system as it related to English learners. Dr. Croce received the Delaware School Business Official of the Year Award (2021).

Paula Daniels

Paula Daniels is a special education specialist with three years of experience in her current role. She has worked in Delaware public schools for 21 years. Paula currently oversees i-Ready, a specialized instruction reading program to identify students in K-4 with reading needs. She works with the most intense and complex students in her school. Since the creation of her position, special education students have improved their reading skills as indicated on i-Ready, Independent Reading Level Assessment, and IEP progress monitoring data. Paula has received a Teacher of the Year award. She has served a grade level team leader and professional learning community leader.

Katie Diggs

Katie Diggs is a special education teacher with four years of experience in her current role. She has worked in Delaware public schools for 18 years. Katie previously worked as a math specialist for Smyrna Elementary School from 2010 to 2018. Katie is currently part of a team that supports special education students' academic needs. In collaboration with classroom teachers, the team works to ensure students are making progress toward IEP goals and are utilizing the specialized programs intended to help them build skills based on their needs.

Mark Dufendach

Dr. Mark Dufendach is a retired superintendent who worked in Delaware public schools for 30 years. During his career, he worked in public school finance in several school districts and at the Delaware Department of Education. He assisted districts in maximizing the use of resources within the existing funding system. Dr. Dufendach has expertise in equalization funding. Dr. Dufendach received multiple chief financial officer of the year awards.

Tenesha Duffy

Tenesha Duffy is a special education teacher who has worked in Delaware public schools for 21 years. Tanesha has taught at the same Title I school since she began teaching. Tanesha works

from the standpoint of high expectations for all students. Tanesha is on the math task force at her school. She regularly attends state level professional learning, from which she shares information and strategies with her school colleagues. She participates in the Transforming and Understanding Professional Learning project, a collaboration between the statewide math coalition and the University of Delaware.

Kyle Hill

Kyle Hill is a special education teacher who has worked in Delaware public schools for 24 years. Kyle is currently a district level resource teacher, overseeing intervention curricula for schools. He works directly with teachers and paraprofessionals as they support students with learning, behavior, social, and emotional needs. He provides instructional coaching, behavioral coaching, and is the lead in providing support services for students designated within tiered systems, 504 plans, and IEPs. Kyle is the lead teacher mentor for the district, supporting new educators and their mentors.

Kyle has served in leadership roles including chair for the Kent County Transition Services Fair Committee, state transition cadre member, and member of the Teach Better Podcast Network team. Kyle was the Caesar Rodney District Teacher of the Year (2018).

Jessica Hurst

Jessica Hurst is a dual certified mathematics and special education teacher with seven years of experience in her current role. She has worked in Delaware public schools for eight years. Jessica works in a Title I public school where she has taught over 20 different classes including standalone inclusion setting B special education, geometry, honors calculus and dual-enrollment quantitative reasoning. Jessica has performed action research in her own classroom that yielded two or more grade levels of growth among students within a single academic year.

Jessica is a leader in education technology. She has given presentations on Schoology in Alabama and Texas and on her YouTube channel. She has also presented on technology with Polytech Adult Education, Jobs for Delaware Graduates, and the Delaware State Education association. Jessica was selected as the 2022-2023 National Education Association Policy and Professional Practice Fellow. She was awarded Lake Forest High School Teacher of the Year (2022).

Nick Johnson

Nick Johnson is a school business official with four years of experience in his current role. He has worked in Delaware public schools for seven years. Nick has served as the business manager for two districts. As the former deputy director of the Budget, Development, Planning and Administration Division at the state Office of Management and Budget, he was integrally

involved in the development of operating, capital, and grants-in-aid budgets. In his current capacity, he manages a variety of district functions including, finance, transportation, buildings and grounds, information technology, child nutrition, athletics, and admissions.

Julie Lavender

Julie Lavendar is a principal with 10 years of experience in her current role. She has worked in Delaware public schools for 16 years. Julie has focused on improving outcomes of students, particularly for those from traditionally underserved backgrounds. Julie was Allen Frear Elementary School Teacher of the Year (2010). During her tenure as principal, the school has received several awards: National Blue Ribbon School (2020), National Blue Ribbon School (2013), National Title 1 Distinguished School (2017), and an award for Excellence in Parental Involvement.

Oribel McFann-Mora

Dr. Oribel McFann-Mora is a language acquisition coordinator with four years of experience in her current role. She has worked in Delaware public schools for 15 years. In her role, Dr. McFann-Mora provides multilingual learners with services, tools, and the linguistic and academic support they need for success. She oversees afterschool and summer learning opportunities for students and their families. Dr. McFann-Mora has completed a five-year term on the Governor's Advisory Council on English Learners and was the president of Delaware English Language Learners Teachers and Advocates (DELLTA). She was also a member of the district's strategic planning committee.

Sheralyn Wiley

Sheralyn Wiley is the director of special services for Capital School District with two years of experience in her current role. She has worked in Delaware public schools for 17 years. Sheralyn oversees discipline and other specialty areas. Her previous experience as a supervisor at Terry Psychiatric Center and Stevenson House Detention Center provided her with experience in working with special populations.

Sussex County Panelist Biographies

Chantalle Ashford

Chantalle Ashford is a principal who has worked in Delaware public schools for nine years. She entered teaching as a Teach For America (TFA) corps member (2014). Chantelle co-founded The Bryan Allen Stevenson School of Excellence, a public charter school. She participated in the Educator as Catalyst fellowship with the Delaware Department of Education with a focus on recruiting teachers who reflect the demographic diversity of students. She is currently studying inclusive school design.

Additionally, Chantelle has participated in Rodel Foundation workshops on education funding. Chantelle has served as English department chair, as a representative on the Middle School Pathways Redesign working group, as a member of the Diversifying the Educator Workforce Workgroup, a state level professional learning community.

Kevin E. Carson

Dr. Kevin E. Carson is a superintendent with 18 years of experience in his current role. He has worked in Delaware public schools for 34 years. During his career, Dr. Carson has collaborated with staff to improve student achievement. At Woodbridge School District, his work led to academic and student success for all populations, including the highest rate of growth on standardized tests in Delaware. He initiated a districtwide student uniform program with financial assistance for students; this led to a reduction in discipline referrals and improved student attendance.

At Sussex Technical High School, he oversaw the implementation a student wellness center program, only the second in the state at that time. The student wellness center provided access to medical and social assistance programs for students. Most recently, Sussex Technical High School was named a top ten high school in Delaware based upon career readiness, graduation rate, Advanced Placement participation rate, reading and math proficiency. Dr. Carson is a former president of the Delaware Chief School Officers Association.

Kelly Carvajal Hageman

Dr. Kelly Carvajal Hageman is the director of curriculum and instruction in Seaford School District. She has 10 years of experience in her current role and has worked in Delaware public schools for 17 years. In her role, Dr. Carvajal Hageman supervises teaching, learning, and assessment. She manages school accountability and all federal grants including Title I, II, III, and IV, and Perkins.

Since 2012, Seaford has made continuous gains in student academic achievement. From 2015 to 2019, third through eighth grade ELA proficiency increased 18% and mathematics proficiency increased 20% on state standardized tests. As a strong advocate for diverse and multilingual learners, Dr. Carvajal Hageman participates on the Delaware Hispanic Commission Education Subcommittee and serves as a state advisory board member for the Delaware State Literacy Plan and the Delaware Math Plan.

Casey Cashdollar

Casey Cashdollar is an English learner specialist with three years of experience in her current role. She has worked in Delaware public schools for eight years. In her prior position as an EL coordinator for Ross Elementary, Casey improved WIDA ACCESS test scores and analyzed student records to identify English learners who had been misidentified. In her current role,

Casey teaches English learners who are primarily immigrant students between the ages of 14 and 20. Casey regularly collaborates with teachers to incorporate effective instructional strategies for English learners in all classroom settings. She facilitates family focused classes to support parents and guardians of English learners to learn strategies to assist their child at home in the various subjects.

Casey initiated the English Learner Olympics (ELympics), which consisted of over 225 participants across three elementary schools. The event focused on academic rigor and competitive based tasks for elementary students. It was attended by Governor John Carney and former Secretary of Education Susan Bunting.

Brennan Clarke

Brennan Clarke is an English learner specialist at Lewes Elementary School in Cape Henlopen School District. He has worked in Delaware public schools for eight years. Brennan is currently on the school improvement team and serves as MTSS coordinator. He is also a member of the school's child study team and coordinator for Lighthouse Schools Leader in Me program. Brennan has work with colleagues to improve supports for students from underserved backgrounds by designing trauma-informed interventions for students, implementing a student mentoring program, promote social-emotional skill-building among students. Brennan was awarded Shields Elementary Teacher of the Year (2020) and District Teacher of the Year (2020).

Susan Darnell

Susan Darnell is a reading specialist with five years of experience in her current role. She has worked in Delaware public schools for 34 years. Susan has taught in three different states and a variety of grade levels from kindergarten to high school. The majority of her career has been spent as an elementary classroom teacher. She is dual certified in elementary and special education. In her role as a reading specialist, she works with struggling readers. Susan is a member of the school's data team and MTSS committee. Susan has served at the lead teacher for the school's summer program, which is intended to support student literacy and preview skills for the coming year. She has participated in "Literacy Nights" to share program goals with parents.

Susan has served for more than 25 years as the president of the local teacher's union president and serves as currently Vice President. In these roles, she has negotiated contracts and advocated for teachers, paraprofessionals, custodians, and cafeteria workers. Susan has served on the district Race to the Top committee, No Child Left Behind initiatives, and most recently, back to school procedures post-COVID-19. Susan was awarded Teacher of the Year (2000).

Emily Falcon

Emily Falcon is a School Business Official with 10 years of experience in her current role. She has worked in Delaware public schools for 18 years. Emily was an education budget analyst at the state Office of Management and Budget, the director of finance at the Delaware Department of Education, and an education policy advisor for former Governor Ruth Ann Minner. She has almost 20 years of experience in education policy and funding.

Nicole Harrison

Dr. Nicole Harrison is district literacy specialist and multilingual learner coordinator in Seaford School District. She has worked in Delaware public schools for 18 years. Dr. Harrison has coordinated with school administrators and multilingual learner teachers to overhaul English learner services. Through this work, the district now implements a push-in rather than pull-out model supporting Tier I instruction in the general education classroom for multilingual learners. Since then, the number of multilingual learners referred for special education has decreased. Dr. Harrison has worked with other staff to develop action plans for differentiation of Tier I, II, and III instruction, promoted aggressive progress monitoring and intervention, and personally worked with struggling students to support reading proficiency.

Bradley H. Layfield

Dr. Bradley H. Layfield is a principal at Sussex Central High School with nine years of experience in his current role. He has worked in Delaware public schools for 22 years. Sussex Central High School is third largest high school and has the highest multilingual learners in the state. Dr. Layfield has experience with managing afterschool and summer programing using federal Title I and state Opportunity Grant funds. In his tenure, he has prioritized a school master schedule that afforded increased academic support to special education and multilingual learners. Prior to COVID-19 school closures, Sussex Central High School had increased SAT math proficiency over a six-year period. Dr. Layfield has managed prevention and response strategies for students exhibiting disciplinary issues and decreased the use of exclusionary practices through implementation of an MTSS model with an academic, disciplinary, and attendance strategies to prevent and respond to challenges.

Alexander D. Luciani Jr.

Alexander D. Luciani Jr. is a special education teacher with 25 years of experience in his current role. He has worked in Delaware public schools for nine years. For the last 11 years, Alexander has been working in an alternative education setting in both private and public educational programs. He has developed the RISE program at Seaford High School, which is designed to assist students with poor attendance, academic performance, behavior or emotional issues.

The goal of the program is to provide students with support, resources, and strategies to completing the requirements for a high school diploma.

Steven Mantegna

Steven Mantegna is a special education teacher with eight years of experience in his current role. He has worked in Delaware public schools for nine years. Steven has experience implementing specialized programming, including after school programs and special education programs.

Jennifer Nein

Jennifer Nein is a multilingual learner coordinator at North Georgetown Elementary School with six years of experience in her current role. She has worked in Delaware public schools for 20 years. In her role, Jennifer provides professional development and support to for teachers on multilingual supports, teaching strategies, and assessments. She has been instrumental in initiating a Latino literacy program and summer reading program for their incoming kindergarten students, and the school's first immersion/bilingual classroom. Jennifer has served on the school's instructional leadership team. She has been awarded the North Georgetown Elementary Teacher of the Year.

Korin Oliver

Korin Oliver is a special education coordinator with five years of experience in her current role. She has worked in Delaware public schools for nine years. Korin has experience implementing specialized programming, including afterschool and special education programs. She has prior experience as a reading specialist, elementary special education teacher, and general education teacher.

Linda Zankowsky

Dr. Linda Zankowsky is the board chair of Sussex Montessori Charter School and the board chair of Montessori Works. She has 10 years of experience in her current role and has worked in Delaware public schools for 18 years. She is also the director of the University of Delaware Montessori Teacher Residency. Dr. Zankowsky has served on various state commissions, district committees, and various leadership roles for Montessori initiatives locally and nationally.

As a former principal in two elementary schools, Dr. Zankowsky advocated for a student-centered approach. She was a strong proponent of Responsive Classroom, supporting teacher professional learning and intense classroom coaching. Mt. Pleasant Elementary School was one of the first in Delaware to use Responsive Classroom, which is now widely used from across the state.

Professional Judgment Panel Materials

DELAWARE PUBLIC EDUCATION FUNDING ASSESSMENT STUDY

Part 1 – Professional Judgment Panel Description

Table of Contents

Important Information

Date: March 16th - March 18th, 2023
Time: 9 AM- 5 PM
Venue: Department of Education-Townsend Building
401 Federal Street, Ste. 2, Dover, DE 19901

Tentative Agenda

Day 1- Thursday, March 16th

8:30-9:00	Arrival and Breakfast
9:00-9:30	Opening and Introductions
9:30-12:00	Session 1- Activity 1 (Program Design)
12:00-12:45	Lunch break
12:45-3:00	Session 2- Activity 1 (Program Design)
3:00-3:15	Coffee Break
3:15-4:45	Session 3 – Activity 2 (Finalize Program Design/Start Resource Cost Model)
4:45-5:00	Wrap-up/Closing

Day 2- Friday, March 17th

8:30-9:00	Arrival and Breakfast
9:00-12:00	Session 1- Activity 2 (Resource Cost Model)
12:00-12:45	Lunch break
12:45-3:00	Session 2- Activity 2 (Resource Cost Model)
3:00-3:15	Coffee Break
3:15-4:45	Session 3 – Activity 2 (Resource Cost Model)
4:45-5:00	Wrap-up/closing

Day 3- Saturday, March 18th

8:30-9:00	Arrival and Breakfast
9:00-12:00	Session 1-Activity 2 (Resource Cost Model)
12:00-12:45	Lunch break
12:45-3:00	Session 2 (Panel Review)
3:00-4:00	Wrapping up

Introduction

You have been selected to serve on one of six professional judgment panels (PJPs) that will contribute to the reexamination of the Delaware school funding system. You have been nominated and selected to serve on one of these PJPs because of your unique knowledge, skills, and perspective as a Delaware educator. Each PJP will be asked to carry out a set of tasks over the course of this three-day meeting.

The purpose of this document is to provide a general overview of the purpose of PJP meetings, the nature of the activities, the assumptions to be made in your work, and the resources to which you will have access to accomplish the tasks.

Statement of Purpose

The ultimate purpose of this work is to help us estimate the cost of providing an *adequate* education for all public school students in Delaware. There are four components required to achieve this objective:

1. **Define adequacy.** First, we are providing the PJPs with a *Goals Statement* (shown in the next section) that defines what is meant by the term "adequate education." The *Goals Statement* incorporates state accountability measures described in the Every Student Succeeds Act (ESSA) and access to Delaware Content Standards.
2. **Design programs.** Second, we are asking each PJP to work independently to design prototype educational programs for hypothetical public elementary, middle, and high school that, in the professional judgment of the panel members, will provide an adequate opportunity for students in schools with varying demographics to have access to the learning opportunities specified in the *Goals Statement* and to achieve the desired results.
3. **Specify resources.** Third, each PJP will be asked to specify the resources (personnel and non-personnel) necessary to efficiently deliver "*adequate"* educational programs in public elementary, middle, and high schools in Delaware.
4. **Estimate costs.** Fourth, the AIR research team will use the information provided by each PJP to estimate the cost to deliver "adequate" educational programs in each and every public school and district in the state.

The charge of the PJP's is to complete components 2 and 3, above. Please note that we are **not** asking PJPs to create a "one size fits all" model to be implemented in all Delaware public schools. Rather, we are asking panels to design instructional programs and specify the resources that they believe will deliver the desired results as ***efficiently as possible*** (i.e., at the lowest possible cost to taxpayers). These program designs and resource specifications provide a basis from which to estimate the costs of achieving the goals and to show how these estimates might be used to modify the existing school funding system. By developing cost estimates for an adequate education from the work of six independent panels, we can measure how sensitive the cost estimates of the panels are to alternative specifications of the personnel and non-personnel resources required to deliver an adequate education.

Goals Statement

In order to determine what an adequate education is, it is important to define the educational goals for students in Delaware. Below is the Goals Statement that should serve as the objective of the programs designed by each PJP.

The Delaware Department of Education (DDOE) is committed to empowering every student to be successful in college, career and life. In order to fulfil this commitment, the State's public education system should promote students' overall wellbeing through providing high-quality academic, behavioral, and health service supports that are delivered in a safe, secure, and supportive learning environment. Importantly, by extending its commitment to success to every student, the DDOE's objective is to ensure that all students will be provided an equal opportunity to meet the State's educational goals, regardless of need classification (English language learner, poverty, special education or otherwise) or location.

The charge of the study professional judgment panels (PJPs) is to design efficient instructional program prototypes for a series of hypothetical elementary, middle and high schools of varying needs that will provide the students a full opportunity to meet the set of academic goals put forth in this goals statement. The goals listed below are based on standards set by the State and include those related to both performance and content standards.

Performance Goals

The **Delaware School Success Framework (DSSF)** details the accountability standards by which Delaware public schools are measured. Data on a variety of outcomes are used to identify each school's needs and determine how best to support students across the state. The DSSF includes measures across the following areas to determine school success:[1]

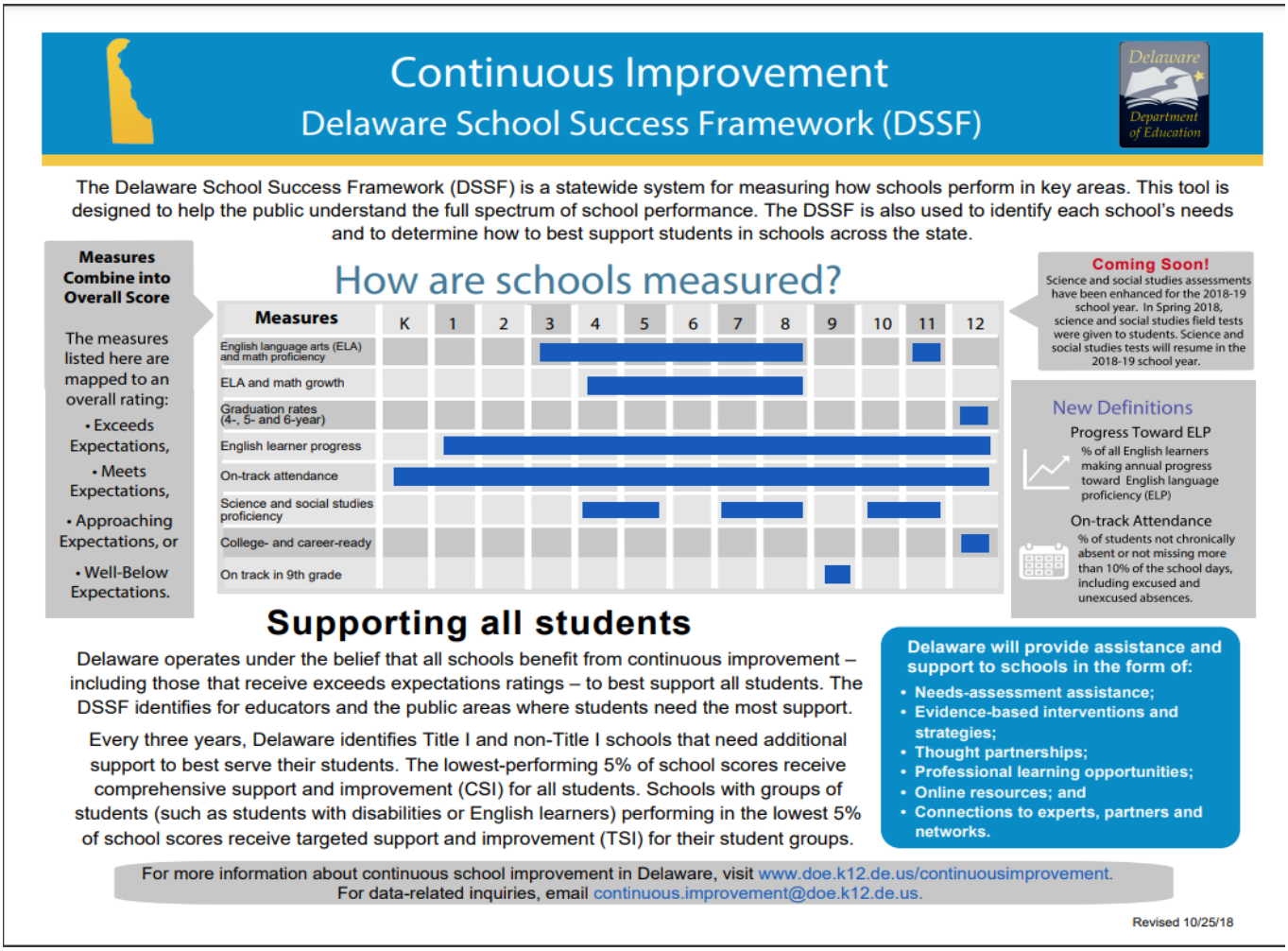
- Academic achievement – Proficiency levels in English language arts (ELA), math, science, and social studies as measured by standardized assessments[2]
- Academic progress – Accounts for student growth in ELA and math achievement from year to year
- School quality/student success – On-track attendance, college/career preparedness, and on-track in 9th grade for graduation on time
- Graduation rates – 4-year, 5-year and 6-year adjusted cohort graduation rates English language proficiency (ELP) – Progress toward English language proficiency

Exhibit 1 provides an overview of the measures included in the DSSF and for which grade levels each applies. Importantly, to best support all students in the state, DDOE operates under the tenet that all schools and their students benefit from continuous improvement – including those that are already receiving an *exceeds expectations* rating. This is squarely in line with the objective of the PJPs, which is to design programs that will provide an equal opportunity for all students to achieve state standards regardless of their needs or where they attend school.

[1] Aggregated data for individual districts and schools for many of the measures included in the DSSF are publicly available on the Delaware Report Card, while more detailed information broken out by grade level and student subgroup can be obtained from the Delaware Open Data Portal.

[2] For state accountability purposes, the Smarter Balanced Assessment Consortium (SBAC) tests are used to measure student achievement in ELA and math for grades 3 through 8, while the Scholastic Aptitude Test (SAT) is used to measure achievement in these subjects for students in grade 11. Tests administered under the Delaware System of Student Assessment (DeSSA) are used to measure achievement in science for grades 5, 8 and 9-12 (for high school grades the assessment on Biology is used) and social studies for grades 4, 7 and 11.

Exhibit 1. Delaware School Success Framework (DSSF) in Support of Continuous Improvement



Exhibits 2a, 2b and 2c provide as reference the average proficiency rates in ELA and math for the most recent school years available (2020-21 and 2021-22), as well as medium- and long-term targets based on the state's Every Student Succeeds Act (ESSA) plan for elementary (grades 3-5), middle (grades 6-8) and high school (grade 11) students both for all students and by student subgroup. For example, the first row in Exhibit 2a shows that the average ELA proficiency rate among grades 3 through 5 in 2021-22 was 42.0%, while the average long-term goal for these grades derived from the individual grade-specific targets listed in the ESSA plan is 77.0%. The short-term goal for 2024-25 calculated by the research team is 55.1%. The short- and long-term targets serve as have also been calculated for the various student subgroups at each schooling level.

Exhibits 3a, 3b, and 3c provide similar tables documenting the actual and target graduation rates for four-, five-, and six-year cohorts of high school students, both over all students and broken out by student subgroup. Finally, as an additional reference the tables in Exhibits 4a-4c and 5a-

5c provide proficiency rates in Science and Social Studies, respectively, both overall and by student subgroup for the three schooling levels.[3]
The PJPs should use these measures as the goals the programs they develop should be capable of achieving.

Content Standards

All public-school students shall make positive and measurable gains through appropriate instructional programs that are aligned to state content standards and benchmarks. The DDOE has set forth a rigorous set of standards and instruction for all educators to follow and to ensure that all students are provided the best education needed to be successful in life. As summarized in the State's administrative code concerning its content standards and instructional program requirements, the following eight areas are those which Delaware has deemed as important for all students to gain proficiency. Hyperlinks in each area lead to details on each area.

English Language Arts	Mathematics
Science	Social Studies
Health and Physical Education	Visual and Performing Arts
Career and Technical Education	World Language

[3] Note that target goals have not been included for the Science and Social Studies proficiency rates. However, the figures provide a useful reference of recent achievement in these two core subject areas.

Exhibit 2a. Average Actual and Target Goal Smarter Balanced Assessment Consortium (SBAC) ELA and Math Proficiency Rates Across Delaware Elementary Grades 3-5

Grade Level	Subgroup Label	ELA				Math			
		Actual		Target		Actual		Target	
		2020-21	2021-22	2024-25 (Short-Term)	2029-30 (Long-Term)	2020-21	2021-22	2024-25 (Short-Term)	2029-30 (Long-Term)
Elementary School (Grades 3-5)	All Students	38.5%	42.0%	55.1%	77.0%	27.7%	35.3%	49.9%	74.4%
	Low Income	22.0%	25.2%	41.6%	68.7%	12.5%	18.5%	36.5%	66.5%
	Students with Disabilities	14.2%	15.1%	31.6%	59.1%	11.0%	13.7%	30.7%	58.9%
	English Learners	15.1%	21.9%	36.2%	60.0%	10.7%	20.2%	35.9%	62.1%
	African American	23.7%	27.6%	43.3%	69.5%	12.7%	18.4%	36.2%	65.8%
	Native American	33.3%	49.1%	60.5%	79.4%		36.0%	50.0%	73.3%
	Asian	69.5%	71.8%	78.6%	89.8%	68.1%	75.6%	80.5%	88.6%
	Native Hawaiian/Pacific Islander	46.7%	52.8%	61.1%	75.0%		45.9%	56.7%	74.7%
	Hispanic/Latino	26.3%	32.2%	46.6%	70.7%	15.5%	24.5%	41.1%	68.8%
	White	49.9%	53.9%	64.9%	83.2%	38.7%	48.7%	60.8%	81.0%

Exhibit 2b. Average and Actual and Target Goal Smarter Balanced Assessment Consortium (SBAC) ELA and Math Proficiency Rates Across Delaware Middle Grades 6-8

Grade Level	Subgroup Label	ELA				Math			
		Actual		Target		Actual		Target	
		2020-21	2021-22	2024-25 (Short-Term)	2029-30 (Long-Term)	2020-21	2021-22	2024-25 (Short-Term)	2029-30 (Long-Term)
Middle School (Grades 6-8)	All Students	43.2%	41.3%	54.9%	77.5%	24.5%	25.3%	41.9%	69.7%
	Low Income	24.4%	23.9%	40.8%	69.0%	9.6%	10.3%	29.6%	61.6%
	Students with Disabilities	9.4%	8.7%	26.8%	57.2%	3.9%	4.3%	23.0%	54.3%
	English Learners	8.5%	9.7%	26.4%	54.3%	3.2%	5.0%	23.0%	53.0%
	African American	28.0%	26.7%	42.6%	69.2%	10.1%	11.5%	30.0%	60.9%
	Native American				79.4%				70.1%
	Asian	76.8%	76.7%	82.1%	91.1%	67.8%	66.1%	73.9%	86.9%
	Native Hawaiian/Pacific Islander				76.2%				72.9%
	Hispanic/Latino	32.5%	32.6%	47.3%	71.8%	14.1%	17.0%	34.6%	63.8%
	White	53.8%	53.9%	65.1%	83.7%	33.9%	36.4%	51.3%	76.3%

Exhibit 2c. Actual and Target Goal ELA and Math Scholastic Aptitude Test (SAT) Proficiency Rates for Delaware Grade 11

Grade Level	Subgroup Label	ELA				Math			
		Actual		Target		Actual		Target	
		2020-21	2021-22	2024-25 (Short-Term)	2029-30 (Long-Term)	2020-21	2021-22	2024-25 (Short-Term)	2029-30 (Long-Term)
High School (Grade 11)	All Students	50.3%	47.1%	58.0%	76.2%	28.4%	24.3%	39.8%	65.7%
	Low Income	28.8%	28.5%	42.7%	66.3%	10.9%	10.2%	27.7%	56.8%
	Students with Disabilities	9.3%	8.0%	25.8%	55.6%	2.3%	2.4%	21.0%	52.0%
	English Learners	5.7%	3.0%	21.8%	53.1%	2.9%			52.6%
	African American	31.8%	30.1%	43.6%	66.3%	14.1%	9.6%	27.3%	56.7%
	Native American				85.2%				66.7%
	Asian	76.6%	79.4%	82.3%	87.2%	66.4%	66.2%	72.0%	81.5%
	Native Hawaiian/Pacific Islander				70.0%				55.0%
	Hispanic/Latino	32.9%	31.8%	45.9%	69.4%	14.6%	13.4%	30.4%	58.8%
	White	62.6%	61.0%	69.0%	82.5%	36.1%	34.1%	48.0%	71.2%

Notes: Empty cells indicate subgroups for which actual proficiency rates were not made public.
Sources: Actual proficiency rates calculated or obtained directly from data available in the Delaware Open Data Portal. Long-term targets taken from calculated or obtained directly from tables included in Delaware's Consolidated State Plan Under the Every Student Succeeds Act. Short-term targets calculated by author.

Exhibit 3a. Actual and Target Goal Four-Year Cohort Graduation Rates

	Actual		Target	
	2019-20	2020-21	2024-25 (Short-Term)	2029-30 (Long-Term)
All Students	87.7%	87.0%	89.6%	92.1%
Low Income	81.4%	78.6%	82.7%	86.8%
Students with Disabilities	70.7%	71.8%	76.8%	81.9%
English Learners	71.9%	69.8%	77.1%	84.3%
African American	86.2%	84.8%	87.7%	90.6%
Native American				82.9%
Asian				>95.0%
Native Hawaiian/Pacific Islander	94.5%	95.7%	>95.0%	>95.0%
Hispanic/Latino	84.9%	81.7%	85.8%	90.0%
White	89.2%	89.8%	91.6%	93.5%

Exhibit 3b. Actual and Target Goal Five-Year Cohort Graduation Rates

	Actual		Target	
	2016-17	2017-18	2024-25 (Short-Term)	2029-30 (Long-Term)
All Students	86.9%	87.1%	90.0%	92.9%
Low Income	78.2%	78.4%	84.2%	90.0%
Students with Disabilities	71.1%	70.6%	77.2%	83.8%
English Learners	72.0%	75.9%	82.6%	89.4%
African American	83.2%	84.3%	87.7%	91.1%
Native American				97.4%
Asian				97.0%
Native Hawaiian/Pacific Islander	95.6%	96.7%	96.9%	97.0%
Hispanic/Latino	82.9%	83.8%	87.6%	91.4%
White	89.8%	89.1%	91.6%	94.0%

Exhibit 3c. Actual and Target Goal Six-Year Cohort Graduation Rates

	Actual		Target	
	2014-15	2015-16	2024-25 (Short-Term)	2029-30 (Long-Term)
All Students	85.7%	85.8%	88.9%	92.1%
Low Income	76.1%	77.6%	82.2%	86.8%
Students with Disabilities	67.9%	69.2%	75.6%	81.9%
English Learners	72.9%	75.5%	79.9%	84.3%
African American	83.0%	82.7%	86.7%	90.6%
Native American				82.9%
Asian				>95.0%
Native Hawaiian/Pacific Islander	94.0%	90.9%	93.0%	>95.0%
Hispanic/Latino	81.9%	82.4%	86.2%	90.0%
White	88.0%	88.2%	90.9%	93.5%

Notes: Empty cells indicate subgroups for which actual proficiency rates were not made public.
Sources: Actual proficiency rates calculated or obtained directly from data available in the Delaware Open Data Portal. Long-term targets taken from calculated or obtained directly from tables included in Delaware's Consolidated State Plan Under the Every Student Succeeds Act. Short-term targets calculated by author.

Exhibit 4a. Actual Delaware System of Student Assessment (DeSSA) Science Proficiency Rates for Delaware Grade 5

Grade Level	Subgroup Label	Science	
		2021	2022
Elementary (Grade 5)	All Students	17.6%	20.1%
	Low Income	7.2%	8.5%
	Students with Disabilities	5.8%	6.8%
	English Learners	1.3%	4.6%
	African American	7.6%	9.6%
	Native American		19.4%
	Asian	47.6%	52.2%
	Native Hawaiian/Pacific Islander		52.9%
	Hispanic/Latino	8.1%	11.4%
	White	25.8%	28.8%

Exhibit 4b. Actual Delaware System of Student Assessment (DeSSA) Science Proficiency Rates for Delaware Grade 8

Grade Level	Subgroup Label	Science	
		2021	2022
Middle (Grade 8)	All Students	17.6%	16.8%
	Low Income	6.4%	6.5%
	Students with Disabilities	1.9%	2.4%
	English Learners		1.8%
	African American	7.4%	6.9%
	Native American	26.3%	
	Asian	42.1%	43.5%
	Native Hawaiian/Pacific Islander		
	Hispanic/Latino	8.1%	10.8%
	White	25.6%	24.9%

Exhibit 4c. Actual Delaware System of Student Assessment (DeSSA) Biology Proficiency Rates Across Delaware Grades 9-12

Grade Level	Subgroup Label	Biology	
		2021	2022
High (Grades 9-12)	All Students	43.9%	26.2%
	Low Income	23.1%	13.3%
	Students with Disabilities	12.1%	5.4%
	English Learners	7.6%	2.7%
	African American	30.5%	13.1%
	Native American		
	Asian	75.3%	54.4%
	Native Hawaiian/Pacific Islander		
	Hispanic/Latino	32.7%	17.1%
	White	51.9%	37.5%

Notes: Empty cells indicate subgroups for which actual proficiency rates were not made public.
Sources: Actual proficiency rates calculated or obtained directly from data available in the Delaware Open Data Portal.

Exhibit 5a. Actual Delaware System of Student Assessment (DeSSA) Social Studies Proficiency Rates for Delaware Grade 4

Grade Level	Subgroup Label	Social Studies	
		2021	2022
Elementary (Grade 4)	All Students	28.7%	31.8%
	Low Income	14.1%	16.3%
	Students with Disabilities	10.5%	11.2%
	English Learners	11.3%	15.1%
	African American	16.3%	19.1%
	Native American	33.3%	23.8%
	Asian	65.5%	
	Native Hawaiian/Pacific Islander	40.0%	
	Hispanic/Latino	18.7%	21.5%
	White	37.8%	42.3%

Exhibit 5b. Actual Delaware System of Student Assessment (DeSSA) Social Studies Proficiency Rates for Delaware Grade 7

Grade Level	Subgroup Label	Social Studies	
		2021	2022
Middle (Grade 7)	All Students	30.4%	28.7%
	Low Income	12.9%	14.0%
	Students with Disabilities	6.3%	5.4%
	English Learners	3.5%	4.2%
	African American	16.5%	15.9%
	Native American		31.3%
	Asian	66.5%	63.3%
	Native Hawaiian/Pacific Islander		28.6%
	Hispanic/Latino	19.8%	19.1%
	White	40.2%	40.0%

Exhibit 5c. Actual Delaware System of Student Assessment (DeSSA) Social Studies Proficiency Rates for Delaware Grade 11

Grade Level	Subgroup Label	Social Studies	
		2021	2022
High (Grade 11)	All Students	35.4%	24.4%
	Low Income	19.8%	11.2%
	Students with Disabilities	6.6%	4.4%
	English Learners		
	African American	21.1%	13.7%
	Native American		
	Asian	64.0%	53.2%
	Native Hawaiian/Pacific Islander		
	Hispanic/Latino	26.2%	14.7%
	White	42.2%	32.1%

Notes: Empty cells indicate subgroups for which actual proficiency rates were not made public.
Sources: Actual proficiency rates calculated or obtained directly from data available in the Delaware Open Data Portal.

PJP Activities

We are asking each professional judgment panel to carry out the following two activities:

1. **Design an instructional program.** Each panel will be responsible for designing coherent instructional program prototypes at the elementary, middle, and high school levels that meet the framework of the indicators and will allow all students in Delaware to reach the state's goals laid out in the *Goals Statement*:

    a) The programs should be consistent with the underlying ***Task Assumptions*** mentioned below.

    b) The programs should allow schools to meet the goals laid out in the ***Goals Statement*** above, which includes both meeting Delaware's performance standards and providing access to its content standards.

    Importantly, the programs should be designed so that they are capable of providing <u>all</u> students at the school the opportunity to achieve target performance levels.

    The instructional program designs will be entered as narrative into a Word document called the ***Program Design Document*** included below.

2. **Specify resources to deliver programs.** With your programs design in mind, we are asking each panel to delineate the specific resources and services necessary to deliver the prototype programs in a series of hypothetical elementary, middle, and high schools representative of the varying needs and enrollment sizes found in Delaware public schools. Each hypothetical school defined by specific grade levels served (elementary, middle and high) and combination of need/enrollment characteristics represents a different task (these are described in detail below).

When designing programs and specifying resources, we ask each panel to specify the ***most efficient*** combinations of various resources necessary to implement the ***best practices*** you believe necessary to ***achieve the desired results***. Ideally, the program design and corresponding resource specifications generated by your professional judgment should be supported by research evidence and reasonable (i.e., could be realistically implemented by competent staff provided sufficient funding were available). Specifically, we ask that panelists keep the acronym ***GEER*** in mind when designing their programs and specifying the resource necessary to support the program designs:

- **<u>G</u>oals** – Will your program design achieve the outcomes listed in the *Goals Statement*?
- **<u>E</u>vidence** – Is there any evidence supporting your program designs and resource specifications?
- **<u>E</u>fficient** – Are your program designs and resource specifications efficient (i.e., will they achieve the intended outcomes at a minimum cost)?
- **<u>R</u>ealistic** – Could your program designs and resource specifications realistically be implemented by competent staff if sufficient funding were made available?

Program Design

The program design should be one that you would reasonably expect to be adopted and funded by a school board comprised of knowledgeable, well-intentioned lay persons and designed to

meet the needs of the local communities. In each of the major tasks we ask you to carry out, the initial activity is to describe the nature of the instructional program that you believe is needed at the elementary, middle, and high school levels to allow schools to meet the state's instructional goals. As instructional programs can be defined in a myriad of ways, the following list (Exhibit 6) is intended to provide you with the types of components that should be considered as you design your program.

Exhibit 6. Program Design Components to Consider

- Core Instructional Program (e.g., regular classrooms, resource teachers, and subject matter specialists)
- English Learner Program
- Special Education Program
- Instructional and Pupil Support Services
- Professional Development Services
- Athletics Program (for Middle and High Schools)
- Extended Time (After-School and/or Summer) Programs
- Materials, Supplies, and Technology (Non-Personnel)
- Other Strategies for Delivering Services

Best Practices in Designing Programs and Specifying Resources

Use your professional judgment. With the exception of the constraints imposed by these instructions, you are free to configure your programs in any way that you feel confident will achieve the desired results. The programs should be based on your best professional judgment and any high-quality research.[4] Your program design should be practical and have a reasonable chance of being implemented successfully by competent educators.

Use resources efficiently. As you proceed through the assigned tasks and activities, we ask you to specify the best combinations of various resources that you believe are necessary to achieve the desired results at minimum cost. You need to be mindful that the resources you allocate will be financed by tax revenues collected primarily from the citizens of Delaware. To this end, we want to ensure that resources are used in the most efficient way possible to reach the specified goals.

Work from design to specification. It is important to design your program first. From our experience working with other educators on similar projects, the most effective groups first decide the nature of the program they would provide, describe the comprehensive program through a narrative program design (i.e., a *Program Design Document*), and then proceed with

[4] We have included with these instructions a copy of expert briefs (*Essential Elements for Successful Schools: Expert Briefs on the Essential Elements of Successful Schools Serving At-Risk Students, English Learners and Students with Disabilities*) written by a nationally recognized group of scholars and practitioners. These papers were intended to provide a balanced overview of relevant research on implementation and policy related to at-risk, English learner and disabled student populations.

staffing the program and allocating resources accordingly. For example, desired class size should be determined in the program design document prior to specifying quantities of teaching staff.

Guiding Assumptions

The following assumptions should guide your deliberations throughout the PJP program design and resource specification process. This list is by no means exhaustive, and we encourage panels to document any additional assumptions or questions in the program design document that you will be completing.

1. **Student demographics and need.** Assume that the student population in each hypothetical school reflects the demographic and need characteristics provided in the task instructions below.
2. **Personnel qualifications.** Assume that all personnel are state-certified in the subject areas that they are teaching, and that salaries are adequate to attract and retain certified faculty and staff. You will be asked to provide your judgment on the appropriate mixture of Early Career and Experienced staff.
3. **School facilities.** Facilities are in place, and funding for facilities improvements are not part of these tasks. If, however, the program you are designing would require any major changes in the current general state of facilities in a district, please note what those changes would be in the program design document.
4. **Maintenance and operations.** Ongoing facilities maintenance and operations are considered a district expense, and we will make appropriate estimates from separate analyses to add these to the school costs estimated from your program specifications.
5. **Instructional supplies, equipment (including educational technology), and textbooks.** Assume that the program you are designing is for an existing school that has the basic amount of supplies, equipment, and textbooks that is typical of Delaware schools. We will provide you with an estimate of the annual per-pupil spending on these non-personnel resources in your worksheets and ask you to suggest **changes or additions to current levels of expenditure for instructional supplies, materials, and textbooks** you believe to be appropriate. However, if you do so, you must describe how these changes will contribute to the specified outcomes.
6. **Student activities, athletics and enrichment.** Assume that the school you are designing has access to sufficient resources to devote non-personnel spending to student activities that are typical of Delaware schools. Here again, we will provide you with estimates of this amount in your worksheets and ask you to suggest **changes or additions to current expenditures on student activities.** Again, if you do so, you must describe how these changes will contribute to the specified outcomes.
7. **Special education services.** Assume the statewide average distribution of disability and severity across the district unless otherwise instructed (incidences of disability by severity are listed for each school task). Based on your professional judgment of what types of special education students should be served in regular classrooms and what types of services should be provided at neighborhood schools, you will be asked to design

appropriate special education instructional programs at each school level (i.e., elementary, middle, high).

8. **Central district administration.** There is no need for the panels to address central district administration expenditures, as these costs will be estimated separately by the research team.
9. **Home-to-school transportation services.** There is also no need for the panels to address home-to-school transportation services. Home-to-school transportation cost estimates are beyond the scope of the present study. If, however, the program you are designing would require any major changes in the current level of transportation services typically offered in Delaware school districts, please note what those changes would be in the program design document.

Implementation Issues

The panels should recognize that the cost estimates derived from this analysis may inform target levels of future investment in public education. The program designs, resource specifications, and the cost estimates may be subject to extensive review and discussion.

Further, it is important to recognize that any recommendations for changes in the levels or distribution of school funding that may come out of this project generally cannot be implemented instantaneously. Significant amounts of planning on the part of the state and local educational decision makers may be necessary to efficiently and effectively manage any new resources that might be necessary to achieve the long-term goals. For this reason, it is not uncommon to phase in such changes over a three- to five-year time horizon in order to permit districts sufficient time to adjust patterns of decision making and resource allocation.

Finally, these goals are not static and may change over time requiring periodic reassessment and reanalysis of the work being undertaken by the PJPs. The program designs may have implications for changes in higher education with demands for additional teachers or other school personnel, and it may entail new investments in capital resources to support programmatic changes.

IMPORTANT: Note that the intention is **NOT** that the specific components of these program designs become mandates for local practice. However insightful are the instructional designs created by the PJPs, or persuasive the case for their effectiveness, the design and specification of adequate educational programs is not an exact science. Harnessing creativity and commitment, and taking advantage of the experience of local educators, necessitates providing them with discretion to determine exactly how funds should be used. Ultimately, each district will be able to make their own resource use decisions. However, we rely on your collective professional judgment to determine adequate resources needed, which will be costed out to inform state funding policy.

Organization of Panel Activities

Each PJP will be asked to appoint a chair to take charge of the panel deliberations. In addition, we have assigned two AIR team members, a lead and assistant facilitator, to assist each PJP in completing its tasks. The lead facilitator will be available to answer any questions and to help

structure the meeting. The assistant facilitator will be responsible for interfacing between the panel and the computer files described next.

Electronic Files Used by PJPs

Each panel will be working with two facilitators to complete the tasks. The facilitators will use the following two files to record the information provided by the panels:

- **PROGRAM DESIGN DOCUMENT**. The first file is a Microsoft Word document and will be used to enter the narrative description of your program design for the elementary, middle, and high school prototypes. This document is structured to record specific information surrounding the programs designed by your panel and has a flexible design to permit you to enter any information deemed appropriate in your deliberations. In addition to the narrative description of your program design, you may include any notes, reminders, concerns, and questions that arise during your deliberations.
- **COST MODEL**. This second file is a Microsoft Excel document containing structured worksheets that will be used to record the quantities of resources the panels believe are necessary to deliver the designed programs and provide corresponding real-time cost calculations for your panel to consider.

While one of the facilitators will be engaging the panel to guide their deliberations, the other will be responsible for recording the PROGRAM DESIGN narrative under the direction of the panel and entering the resource specifications into the COST MODEL based on decisions made by the panel.

DELAWARE PUBLIC EDUCATION FUNDING ASSESSMENT STUDY

Part 2 – Professional Judgment Panel Task Instructions

Resources and Services

On the following page, Exhibit 7 lists the school-level resources included in the COST MODEL worksheets. You will be asked to specify the quantities of these resources necessary to deliver the instructional programs you design. Please use the PROGRAM DESIGN document to describe how specific resources will be recorded within the elements listed in Exhibit 7.

Exhibit 7: School-Level Resources

Length of the School Day and Year

Proportions of Teachers at Early Career or Experienced stages

Core Instructional Program Personnel (teachers and educational assistants)

- Classroom teachers by grade level
- Middle and high school classroom teachers by subject area (core subjects, career education, and athletic program)
- Resource teachers and subject matter specialists (e.g., academic coaches, art, music, PE, English language arts, math, science, and gifted)

English Learner Specialists (professional staff and educational assistants)

- Bilingual resource teachers
- English language development resource teachers

Special Education Program Personnel (professional staff and assistants)

- Special education teachers
- Related services caseload teachers
- Speech/language pathologists

Instructional and Pupil Support Services (professional staff and assistants)

- Guidance Counselors
- School Psychologists
- Social Workers
- School Nurses
- Librarians/Media Specialists
- Technical Consultants
- Academic Coaches
- Other Student Support Services

Non-Personnel Expenditures (includes supplies & materials, specialized equipment, contracted services)

Professional Development Expenditures

Student Athletics Programs

- Administrative personnel
- Coaches
- Transportation for athletics

Extended Time (day and year) Programs

- Administrative personnel
- Teachers

Administrative and Support Staff

- Principal and vice principals
- Other professional staff
- Clerical and office staff

Task Overview

With the outcomes described in the *Goals Statement* in mind, we ask that each panel undertake two specific activities: 1) develop a narrative description of the instructional programs (i.e., the program design) and 2) specify resources necessary to deliver that program. These activities will be completed for a series of hypothetical elementary, middle and high schools that represent different tasks. Each task is presented below and organized around a specific set of student demographics used to detail the levels of student needs and enrollment characteristics that define the prototype schools for which the panels will be designing instructional programs and specifying resources. The student characteristics include the percent of students who are low-income, the percent of English Learners, and the percent of students eligible for special education services and the proportions with Basic, Intense, and Complex needs.

Panelists will be asked to complete tasks for the following models at the elementary, middle and high school levels:

1) Base Model (school with low student needs and typical enrollment)
2) High Poverty (school with high poverty incidence)
3) High Poverty, High English Learner (school with high poverty and high English learner incidences)
4) High Special Education, Basic (school with high incidence of special education students with basic needs)
5) High Special Education, Intense and Complex (school with high incidences of special education students with basic, intense, and complex needs)
6) Low Enrollments (school with low student needs and low enrollment)

In addition, there is a final task focused on determining district-level special education supports.

Task 1: The Base Model

Important note: The product of this task (the *Base Model*) provides a foundation for all remaining tasks to be completed over the course of the panel deliberations. We estimate that this task will require a significant amount of deliberation but will make the remaining tasks easier to accomplish.

The combination of **program design** and **resource specifications** you develop under this task will subsequently be referred to as the *Base Model*.

The 'Typical, Low-Needs' Delaware School

While we realize that all schools and students are unique, we are asking panelists to design instructional programs for schools attended by the typical low-needs public school student in Delaware. The table below (Exhibit 8) shows the enrollment and student characteristics of the typical low-needs school in Delaware at each grade level. We will also make available a Task Demographics Worksheet handout that shows similar information for each task by schooling level and can be used as reference when designing instructional programs for their respective student populations.

Exhibit 8: Sample School and Student Characteristics for the Typical Low Needs Delaware Elementary, Middle, and High Schools (Counts and Percentages in Parentheses)

School and Student Characteristics	**Elementary School** (Grades K-5)	**Middle School** (Grades 6-8)	**High School** (Grades 9-12)
School Size			
Enrollment	573	860	1,448
Poverty			
Low-Income	138 (24%)	215 (25%)	275 (19%)
English Learners (ELs)			
English Learners	40 (7%)	43 (5%)	29 (2%)
Special Education Students (SE)			
Special Education	103 (18%)	155 (18%)	217 (15%)
Special Education Basic	61 (59%)	104 (67%)	141 (65%)
Special Education Intense	29 (28%)	37 (24%)	59 (27%)
Special Education Complex	13 (13%)	14 (9%)	17 (8%)

Note: Percent figures listed under special education categories represent proportional breakouts of special education population.

Activity 1: Instructional Program Design

Using the PROGRAM DESIGN document to report on your deliberations and decisions, please describe the instructional and support programs that you believe are necessary for students served in the typical Delaware schools to achieve the desired outcomes outlined in the *Goals*

Statement. For guidance and instructional components to consider, please refer to *Program Design Elements to Consider* (Exhibit 6) and use the guiding questions found in the PROGRAM DESIGN document. Please **be as specific as possible given the time available**. From your description, other professional educators should be able to understand the nature of the programs and how they relate to the desired outcomes.

Base elementary, middle, and high school instructional programs. We have provided space in the PROGRAM DESIGN document for descriptions of elementary (grades K-5), middle (grades 6-8), and high (grades 9-12) school programs. Please describe all of the basic instructional services necessary to meet the needs of all students served in the school, including students living in poverty, English learners, and special education (both Basic, Intense, and Complex disabilities). Please describe the allocation, organization, and utilization of personnel and non-personnel resources and services in the following programmatic areas:

- Core Instructional Program (e.g., regular classrooms, resource teachers, and subject matter specialists)
- English Learner Program
- Special Education Program
- Instructional and Pupil Support Services
- Professional Development Services
- Athletics/Enrichment Programs (for Middle and High Schools)
- Extended Time (After-School and/or Summer) Programs
- Materials, Supplies, and Technology (Non-Personnel)
- Other Strategies for Delivering Services

Please also consider any additional support personnel and services you might require to ensure the success of the instructional programs.

Special education services. Your panel should think through its philosophy and rationale for serving special education students at the school- and regional-level. Special education personnel available at the school-level include general special education teachers, related services caseload teachers and speech/language pathologists.

In a subsequent task (Task 7), a special education subpanel will specifically address the regional- and district-level components of special education programs. These regional-level components include the nature of the instructional and related services offered to the following categories of special education (SE) students:

- those not served in the neighborhood schools
- those requiring related ancillary services not already captured in the instructional programs that your panel might specify in the *Base Model* task

For the current task, your panel should establish the general program orientation, the division of responsibility between the school and region for serving SE students, the extent to which special education services are integrated into the regular classroom, the use of response to intervention

(RTI) if applicable and multi-tiered systems of support (MTSS), and the deployment of SE resources necessary to deliver that instructional program to SE students at the school level.

Activity 2: Resource Specification

For this activity, your panel should use the worksheets in the Excel COST MODEL file to enter the quantities of resources necessary to deliver the instructional program described in your PROGRAM DESIGN document. The COST MODEL includes information on typical compensation rates (inclusive of salaries and benefits) for full-time school personnel staff so that once you have entered the appropriate full-time equivalent (FTE) quantities, you will be able to see the cost implications of your decisions. The combination of program design and resource specifications you develop under this task will subsequently be referred to as the *Base Model.*

Navigating the COST MODEL

A lead facilitator and facilitator assistant will be available to navigate and input resources into the COST MODEL worksheets.

Schooling Level Specific Worksheets. In addition, there are separate input worksheets for the three school levels: one each for elementary (ELEM), middle (MIDDLE), and high (HIGH) schools. Each of these worksheets contains the basic set of resources used to support school operations at each grade level. The top section of each worksheet reproduces the enrollment and student demographic characteristics for typical Delaware schools pertinent for each task. The second section of the worksheet provides panels with a structure for translating the desired instructional program into specific resources. Specifically, it asks panels to specify the:

- Length of the school day and year
- Fulltime equivalent (FTE) quantities for various types of teaching and professional personnel
- FTE quantities of other non-teaching personnel and specialists
- Allocations of non-personnel resources
- Amounts of time and other resources that should be devoted to professional development
- Percentage of students and hours of educator time required for delivering extended day or extended year programs
- Percentage of students who will be taking career and technical education/vocational education courses (for high school only)

Data may only be entered in the white cells within each worksheet. Colored cells provide relevant information, calculations of relevant statistics, and cost estimates for your program. If the panel decides not to allocate funds or assign certain personnel, this choice should be indicated with a ‘0’.

In instances where an employee works in a school less than full time, please allocate only the fraction of full time (FTE) necessary to deliver the educational program. For example, a teacher who teaches half-time would count as 0.5 FTE.

Default values. You will also notice that we have provided default values for Task 1 for many of the resource quantities, class sizes, and per pupil expenditures. These default values represent actual class size and resource data for schools with the corresponding demographics.

Task 2: Programs for High Poverty Schools

Task Overview

In Task 1, we asked your panel to develop the *Base Model.* In Task 2, we are asking you to describe how you would change your *Base Model* (i.e., your program design and resource specifications in Task 1) in response to an increase in the percentage of low-income students, holding all other student characteristics constant. Specifically, we are asking you to revise your program design and resource specifications for schools serving higher percentages of students in poverty.

Exhibit 9: Sample School and Student Characteristics for the Typical High Poverty Delaware Elementary, Middle, and High Schools

School and Student Characteristics	**Elementary School** (Grades K-5)	**Middle School** (Grades 6-8)	**High School** (Grades 9-12)
School Size			
Enrollment	573	860	1,448
Poverty			
Low-Income	241 (42%)	361 (42%)	478 (33%)
English Learners (ELs)			
English Learners	40 (7%)	43 (5%)	29 (2%)
Special Education Students (SE)			
Special Education	103 (18%)	155 (18%)	217 (15%)
Special Education Basic	61 (59%)	104 (67%)	141 (65%)
Special Education Intense	29 (28%)	37 (24%)	59 (27%)
Special Education Complex	13 (13%)	14 (9%)	17 (8%)
Note: Percent figures listed under special education categories represent proportional breakouts of special education population.			

Program Modifications

The next step for your panel is to consider whether the increase in the student poverty levels in Task 2 would require you to make modifications in your program design and/or the resource specifications developed for the *Base Model* in Task 1.

- **A change from low to high levels of poverty**

  How would an increase in student poverty from the level in the *Base Model* (Task 1) to the **high poverty** level (in Task 2) affect the base instructional program designed to achieve the outcome goals?

Please proceed to complete *Activities 1* and *2* below using the guidelines and instructions in the appropriate PROGRAM DESIGN document and COST MODEL file for these tasks.

Activity 1: Instructional Program Design

Using the PROGRAM DESIGN document, please follow the guiding questions provided when considering modifications in the *Base Model* resulting from the specified change in student characteristics. It is not necessary for the panels to update the entire series of programmatic components that they originally did for the *Base Model*. Instead, panels should focus ONLY on identifying those changes that must be made to the *Base Model* design in response to the increase in student need presented in this task (*High Poverty Schools*).

Activity 2: Resource Specification

Once you complete Activity 1 for all of the tasks, you will move on to specifying the staff and non-personnel resources necessary to support the program designs developed. At this point, you may open the portions of the elementary, middle, and high school worksheets in the COST MODEL file corresponding to Task 2 and specify any changes in the resource specifications necessary to deliver this modified instructional program. The values previously determined for the *Base Model* will be the default starting values automatically entered for this task into each of these three schooling-level specific worksheets.

Task 3: Programs for High Poverty and High English Learner (EL) Schools

Task Overview

In Task 2, we asked your panel to modify the *Base Model* in response to a difference in the percentage of low-income students, holding all other student characteristics constant. In Task 3, we are asking you to describe how you would change your *high poverty model* specified in Task 2 according to an increase in the percent of English Learners. Specifically, we are asking you to revise your program design and resource specifications for schools serving higher percentages of EL students.

Exhibit 10: Sample School and Student Characteristics for the Typical High Poverty and High EL Delaware Elementary, Middle, and High Schools

School and Student Characteristics	**Elementary School** (Grades K-5)	**Middle School** (Grades 6-8)	**High School** (Grades 9-12)
School Size			
Enrollment	573	860	1,448
Poverty			
Low-Income	241 (42%)	361 (42%)	478 (33%)
English Learners (ELs)			
English Learners	132 (23%)	129 (15%)	174 (12%)
Special Education Students (SE)			
Special Education	103 (18%)	155 (18%)	217 (15%)
Special Education Basic	61 (59%)	104 (67%)	141 (65%)
Special Education Intense	29 (28%)	37 (24%)	59 (27%)
Special Education Complex	13 (13%)	14 (9%)	17 (8%)

Note: Percent figures listed under special education categories represent proportional breakouts of special education population.

Program Modifications

The next step for your panel is to consider whether the increases in the student poverty and EL levels in Task 3 would require you to make modifications in your program design and/or the resource specifications developed for the *High Poverty Model* in Task 2.

- **A change from low to high levels of English Learners.**

  How would an increase in the percentage of EL students from the **high poverty** level in the *High Poverty Model* (Task 2) to the **high poverty and EL** level (in Task 3) affect the instructional program designed to achieve the outcome goals?

Please proceed to complete *Activities 1 and 2* below using the guidelines and instructions in the appropriate PROGRAM DESIGN document and COST MODEL file for these tasks.

Activity 1: Instructional Program Design

Using the PROGRAM DESIGN document, please follow the guiding questions provided when considering modifications in the *High Poverty Model* resulting from the specified change in student characteristics. It is not necessary for the panels to complete the entire series of programmatic components that they originally did for the *Base Model*. Instead, panels should focus ONLY on changes that must be made to the *High Poverty Model* in response to the increase in student need presented in this task (*High Poverty and High English Learner Schools*).

Activity 2: Resource Specification

Once you complete Activity 1 for all of the tasks, you will move on to specifying the staff and non-personnel resources necessary to support the program designs developed. At this point, you may open the portions of the elementary, middle, and high school worksheets corresponding to Task 3 and specify any changes in the resource specifications necessary to deliver this modified instructional program. The values previously determined for the *High Poverty Model* will be the default starting values automatically entered for this task into each of the three schooling-level specific worksheets.

Task 4: Programs for High Special Education, Basic

Task Overview

In Task 1, we asked your panel to develop the *Base Model*. In Task 4, we are asking you to describe how you would change your *Base Model* (i.e., your program design and resource specifications in Task 1) in response to a difference in the number of students receiving special education services with Basic needs, holding all other student characteristics constant. Specifically, we are asking you to revise your program design and resource specifications for schools serving higher numbers of special education students with Basic needs.

Exhibit 11: Sample School and Student Characteristics for the Typical High Special Education (Basic) Delaware Elementary, Middle, and High Schools

School and Student Characteristics	**Elementary School** (Grades K-5)	**Middle School** (Grades 6-8)	**High School** (Grades 9-12)
School Size			
Enrollment	573	860	1,448
Poverty			
Low-Income	138 (24%)	215 (25%)	275 (19%)
English Learners (ELs)			
English Learners	40 (7%)	43 (5%)	29 (2%)
Special Education Students (SE)			
Special Education	133 (23%)	207 (24%)	288 (20%)
Special Education Basic	91 (68%)	156 (75%)	212 (74%)
Special Education Intense	29 (22%)	37 (18%)	59 (20%)
Special Education Complex	13 (10%)	14 (7%)	17 (6%)
Note: Percent figures listed under special education categories represent proportional breakouts of special education population.			

Program Modifications

The next step for your panel is to consider whether the changes in the number of students receiving special education services with Basic needs would require you to make modifications in your program design and/or the resource specifications developed for the *Base Model* in Task 1.

- **A change from low to high special education number of students receiving special education services (with Basic needs)**

  How would a change in the numbers of students receiving special education services from the low level in the Base Model (Task 1) to the high special education level of students with Basic needs (Task 4) affect the base instructional program designed to achieve the outcome goals?

Please proceed to complete *Activities 1 and 2* below using the guidelines and instructions in the appropriate PROGRAM DESIGN document and COST MODEL file for these tasks.

Activity 1: Instructional Program Design

Using the PROGRAM DESIGN document, please follow the guiding questions provided when considering modifications in the Base Model resulting from the specified change in student characteristics. It is not necessary for the panels to complete the entire series of programmatic components that they originally did for the *Base Model*. Instead, panels should focus ONLY on identifying those changes that must be made to the *Base Model* design in response to the increase in student need presented in this task (*High Special Education (Basic) Schools*).

Activity 2: Resource Specification

Once you complete Activity 1 for all of the tasks, you will move on to specifying the staff and non-personnel resources necessary to support the program designs developed. At this point, you may open the portions of the elementary, middle, and high school worksheets corresponding to Task 4 and specify any changes in the resource specifications necessary to deliver this modified instructional program. The values previously determined for the *Base Model* will be the default starting values automatically entered for this task into each of the three schooling-level specific worksheets.

Task 5: Programs for High Special Education, Intense and Complex

Task Overview

In Task 4, we asked your panel to develop the *High Special Education, Basic Model*. In Task 5, we are asking you to describe how you would change your *High Special Education, Basic Model* (i.e., your program design and resource specifications in Task 4) in response to a difference in the number of students receiving special education services with Intense and Complex needs, holding all other student characteristics constant. Specifically, we are asking you to revise your program design and resource specifications for schools serving greater numbers of special education students with Intense and Complex needs.

Exhibit 12: Sample School and Student Characteristics for the Typical High Special Education (Intense and Complex) Delaware Elementary, Middle, and High Schools

School and Student Characteristics	**Elementary School** (Grades K-5)	**Middle School** (Grades 6-8)	**High School** (Grades 9-12)
School Size			
Enrollment	573	860	1,448
Poverty			
Low-Income	138 (24%)	215 (25%)	275 (19%)
English Learners (ELs)			
English Learners	40 (7%)	43 (5%)	29 (2%)
Special Education Students (SE)			
Special Education	154 (27%)	233 (27%)	326 (23%)
Special Education Basic	91 (59%)	156 (67%)	212 (65%)
Special Education Intense	43 (28%)	56 (24%)	88 (27%)
Special Education Complex	20 (13%)	21 (9%)	26 (8%)
Note: Percent figures listed under special education categories represent proportional breakouts of special education population.			

Program Modifications

The next step for your panel is to consider whether the changes in the number of students receiving special education services with Intense and Complex needs would require you to make modifications in your program design and/or the resource specifications developed for the *High Special Education, Basic* in Task 4.

- **A change from low to high special education number of students receiving special education services (with Intense and Complex needs)**

  Would a change in the number of students receiving special education services from *High Special Education, Basic* (Task 4) to the high special education level of Intense and Complex number (in Task 5) affect the base instructional program designed to achieve the outcome goals?

Please proceed to complete *Activities 1 and 2* below using the guidelines and instructions in the appropriate PROGRAM DESIGN document and COST MODEL file for these tasks.

Activity 1: Instructional Program Design

Using the PROGRAM DESIGN document, please follow the guiding questions provided when considering modifications in the *High Special Education Basic Model* resulting from the specified change in student characteristics. It is not necessary for the panels to complete the entire series of programmatic components that they originally did for the *Base Model*. Instead, panels should focus ONLY on identifying those changes that must be made to the *Base Model* design in response to the increase in student need presented in this task (*High Special Education (Intense and Complex) Schools*).

Activity 2: Resource Specification

Once you complete Activity 1 for all of the tasks, you will move on to specifying the staff and non-personnel resources necessary to support the program designs developed. At this point, you may open the portions of the elementary, middle, and high school worksheets corresponding to Task 5 and specify any changes in the resource specifications necessary to deliver this modified instructional program. The values previously determined for the *High Special Education (Basic) Schools Model* will be the default starting values automatically entered for this task into each of these three schooling-level specific worksheets.

Task 6: Programs for Small Schools

Task Overview

In Task 1, we asked your panel to develop the *Base Model.* In Task 6, we are asking you to describe how you would change your *Base Model* (i.e., your program design and resource specifications in Task 1) in response to a difference in school size (enrollment), holding all other student characteristics constant. Specifically, we are asking you to revise your program design and resource specifications for schools serving significantly fewer students.

Exhibit 13: Sample School and Student Characteristics for the Typical Low Enrollment Delaware Elementary, Middle, and High Schools

School and Student Characteristics	**Elementary School** (Grades K-5)	**Middle School** (Grades 6-8)	**High School** (Grades 9-12)
School Size			
Enrollment	374	680	890
Poverty			
Low-Income	90 (24%)	170 (25%)	169 (19%)
English Learners (ELs)			
English Learners	26 (7%)	34 (5%)	18 (2%)
Special Education Students (SE)			
Special Education	67 (18%)	122 (18%)	134 (15%)
Special Education Basic	40 (59%)	82 (67%)	87 (65%)
Special Education Intense	19 (28%)	29 (24%)	36 (27%)
Special Education Complex	9 (13%)	11 (9%)	11 (8%)
Note: Percent figures listed under special education categories represent proportional breakouts of special education population.			

Program Modifications

The next step for your panel is to consider whether the changes in student enrollment in Task 6 would require you to make modifications in your program design and/or the resource specifications developed for the *Base Model* in Task 1.

- **A change from an average school size to a small school size in student enrollment.**

  Would a change in student enrollment from the level in the *Base Model* (Task 1) to a **low enrollment** (in Task 6) affect the base instructional program designed to achieve the outcome goals?

Please proceed to complete *Activities 1 and 2* below using the guidelines and instructions in the appropriate PROGRAM DESIGN document and COST MODEL file for these tasks.

Activity 1: Instructional Program Design

Using the PROGRAM DESIGN document, please follow the guiding questions provided when considering modifications in the *Base Model* resulting from the specified change in student characteristics. It is not necessary for the panels to complete the entire series of tasks that they originally did for the *Base Model.* Instead, panels should focus ONLY on identifying those changes that must be made to the *Base Model* design in response to the decrease in school enrollment size presented in this task (*Small Schools*).

Activity 2: Resource Specification

Once you complete Activity 1 for all of the tasks, you will move on to specifying the staff and non-personnel resources necessary to support the program designs developed. At this point, you may open the portions of the elementary, middle, and high school worksheets corresponding to Task 6 and specify any changes in the resource specifications necessary to deliver this modified instructional program. The values previously determined for the *Base Model* will be the default starting values automatically entered for this task into each of the three schooling-level specific worksheets.

Task 7: District and Regional-Level Special Education Programs and Resources

In Task 7, we are asking special education sub-panels to determine and describe district-level special education programs and resources. This task requests that panels specify pupil-staff ratios and per-pupil expenditures for various instructional and related service professionals and assistants who may provide services in regular or special education schools. These services are provided by professional staff that may operate out of the district office and provide part-time services in the regular, neighborhood schools within the districts. Neighborhood schools can be designated as housing specialized programs for students with disabilities who have need for intensive instructional services. In addition, these related services may serve specific needs of students who are dispersed throughout the district or region, and this would necessitate parttime services by professional staff operating out of the district office.

The goal of this task is to obtain your input on the program design most appropriate for the district category represented by your panel and the pupil-staff ratios that may reflect the differential circumstances faced by the types of districts you represent.

Keep in mind that the services you specify at this level under Task 7 are for the following categories of special education students:

- those not served in the neighborhood schools
- those who are served in the regular neighborhood schools but require related services not included in the school-level instructional program worksheets

The instructional and related services for which you will be able to specify pupil-staffing ratios include the following:

Related Services

- Administrator for special education
- Interpreter
- Medical/nursing services
- Speech-language pathologist
- Modified or specially designed physical education
- Special education audiology
- Special education mobility instructor
- Special education occupational therapist
- Special education physical therapist
- Special education program specialist
- Special education vision therapist
- Special education work study coordinator

Please proceed to complete *Activities 1 and 2* below using the guidelines and instructions in the appropriate PROGRAM DESIGN document and COST MODEL file for these tasks.

Exhibit 14: Sample District Characteristics for the Typical Low-Needs Delaware School District

District Characteristics	Average
District Size	
Enrollment	6,116
Poverty	
Low-Income	1,407 (23%)
English Learners (ELs)	
English Learners	306 (5%)
Special Education Students (SE)	
Special Education	1,039 (17%)
Special Education Basic	613 (59%)
Special Education Intense	291 (28%)
Special Education Complex	135 (13%)

Note: Percent figures listed under special education categories represent proportional breakouts of special education population.

Activity 1: Instructional Program Design

Using the PROGRAM DESIGN document, please follow the guiding questions for describing how these district level services are likely to be provided in the typical Delaware school district in the category represented on your panel. The questions ask you how severely involved students with disabilities are commonly served in your districts in order to provide them with adequate educational opportunity.

Activity 2: Resource Specification

Once you complete Activity 1 for all of the tasks, you will move on to specifying the staff and non-personnel resources necessary to support the program designs developed. At this point, you may open the District Special Education portions of the COST MODEL worksheets corresponding to Task 7 and record the resource specifications necessary to deliver these services in the category of districts represented by your panel.

PROGRAM DESIGN DOCUMENT
Delaware Professional Judgment Panels

As mentioned in the general instructions, *"the purpose of these tasks is for your team to describe educational programs that, in the judgment of its members, will provide an adequate opportunity for the specified student populations to meet the Desired Education Goals."* While the ultimate goal of these deliberations is to arrive at a cost corresponding to an amount necessary for an 'adequate' education in Delaware, we feel it is equally important to understand the design elements from which the numbers are generated.

This PROGRAM DESIGN document is intended for recording panel deliberations on instructional programs designed for schools with varying demographic compositions. This document has three main purposes:

1. To serve as a guide to help panels think about the different resources necessary for delivery of these programs. These resources will be further specified in the Cost Model.
2. To provide the AIR research team and policymakers insight into what resources are considered most effective and necessary to meet the desired educational goals.
3. To build as much transparency as possible into this process. This is particularly important when thinking about how these results will be presented and used by various stakeholders.

This document is organized around the tasks and activities found in the general and the specific task instruction set in the "Instructions" tab in your binder. Please note that all boxes provided in this document are designed to expand as you enter information, and there are projection screens so that all panel members can view the information as it is being entered into the document. AIR has assigned a data entry specialist to assist the panels in entering the narrative developed by the panel into the PROGRAM DESIGN document.

There are no specific restrictions on what information should be included in this document. Please enter as much information as necessary to capture the essential elements and issues that arise during your panel deliberations. Final versions of these documents will be distributed to the panels at the end of the three days or subsequently after that via email. If you have any questions or concerns at any point during these exercises, please consult the facilitators assigned to your panel.

We recognize that this is a daunting task and one that could conceivably require substantially more time than the three days we have provided for this work. However, it is important to keep in mind that the purpose of this exercise is not to prescribe how all Delaware schools should necessarily implement their instructional programs nor exactly how they should allocate their budgets among various resources and services. We are **NOT** asking you to create a "one size fits all" model. *We are asking for what you consider to be a reasonable model of services and programs that might legitimately achieve the desired results at the lowest possible cost. This model will be used to help guide the modification of the existing school funding formula to be used to provide access to resources in schools and districts across the entire state.*

Task 1: The Base Model Instructional Program Design

Task 1 has three separate activities and is the most extensive of all the tasks. As mentioned, this task will likely require a substantial portion of your overall time, and the work you do for this task should help to make the remaining tasks easier to accomplish.

Using the guiding questions below, each panel should develop elementary, middle, and high school instructional programs aimed at achieving the desired educational goals. These questions are subsumed into six different themes. However, we recognize that these themes are not necessarily distinct and may overlap with one another. Panels should address these questions and themes in any order that they see fit. **We do not expect that panels will necessarily address each and every question listed below, but rather will use these as a guide to think about instructional programs.**

Below is a table with the themes and questions that you might consider during this phase of your deliberations. These are not necessarily exhaustive but are rather suggestive of some of the kinds of things you should consider prior to working with the COST MODEL Excel worksheets. We strongly encourage the panels to provide information on the **rationale** behind their decisions and program designs.

General Instructions

Imagine you are no longer at your current school and district but are charged with creating an instructional design for a new school along with the colleagues joining you in this exercise. This program should be designed to meet the expectations of the Goals Statement.

General Program Characteristics
- What is the overarching instructional design for this school?
- What will the instructional day and week look like for the typical student and teacher?
- Given the structure of the instructional day, what personnel will be necessary?
- What is the desired distribution of experienced versus early career staff? Will their roles differ?
-What types of instructional and other specialists will be required to meet outcome goals?
- What are the target class sizes and teacher caseloads?
-What percentage of students will be taking career and technical/vocational education courses in high school? What areas are they taking most of those courses in?
- What are the rationales and expectations behind each of these general philosophies and characteristics?

Special Populations	**Extended School Day/Year Programs**
-How will the special education (SE) program be structured? - To what extent will SE students be included in regular schools and classrooms? How does it vary by their classification (Basic, Intense, Complex)? -What types of supports are required by SE students? - How will the EL program be structured? -What types of support are required by EL students? -What types of supports are required for students living in poverty? - What are the rationales and expectations behind each of these decisions surrounding special populations? **Important Note**: Please remember that special education services available at the school level include special day class teachers, resource specialists, itinerant consulting teachers and related service providers assigned to designated instructional services (speech, physical occupational therapy, etc.)	- What students will be targeted in the extended day program? What will be the focus and structure of this program? *Several things to consider include class or program size, the duration of the program, supplemental materials, and the number of required teachers and aides.* -What students will be targeted in the extended year program? What will be the focus and structure of this program? *Several things to consider include class or program size, the duration of the program, supplemental materials, and the number of required teachers and aides.*
Professional Development (PD)	**Non-personnel Expenditures**
- What types of PD will teachers receive? Please describe what professional development opportunities will be available (in-services, release days, time for collaboration) to teachers and support staff and the content or focus of these activities. What will be the focus, frequency, structure, and duration? - Who will attend and deliver these opportunities? - What are the rationales and expectations behind each of these decisions surrounding PD? -How much of the PD will be led internally by schools/district and how much will be contracted out to consultants or other external experts?	- What types of instructional materials and supplies will be used for classroom instruction? - What types of instructional materials and supplies will be available for special needs populations? - What technology will be available to students and teachers? - What are the rationales and expectations behind each of these decisions surrounding non-personnel expenditures?
Support Personnel	
- In terms of additional personnel, what instructional support and pupil services will students receive? - What roles will these additional personnel hold? - What are the rationale and expectations behind each of these decisions surrounding support personnel?	
Administrative Services	
-What administrative services will be available? Please describe the number and roles of administrators, clerical staff, security and other professional staff.	

Please use the boxes below to enter your deliberations and decisions surrounding the base model (typical Delaware school) instructional program. Your binder contains information on this typical school's demographics and resource use (in the "Resource Profile for Base Models" worksheet). Remember to include your rationale behind your instructional program decisions. If desired, the data entry assistant will identify and group the instructional design inputs into the themes listed above.

General Programmatic Issues that Cut across grade levels (e.g., degree of inclusion, etc.)
Please enter description and rationale below **(**the box will automatically expand to fit your narrative).

Elementary School Program
Please enter description and rationale below **(**the box will automatically expand to fit your narrative).

Middle School Program
Please enter description and rationale below **(**the box will automatically expand to fit your narrative).

High School Program
Please enter description and rationale below **(**the box will automatically expand to fit your narrative).

General Questions and Concerns

Resource Specification

When you have completed your *Base Model* instructional program design**,** you may open the COST MODEL worksheets and begin to specify the resources necessary to deliver the instructional programs. Your facilitators will coordinate data entry into the worksheets and be available throughout the deliberations for questions. The following are some reminders and tips for entering information into the worksheets:

- Please enter data only in the white (open) cells in the worksheet.
- You will be provided with default values reflecting real resource allocation in Delaware schools within similar demographics corresponding with each task.
- The values entered into the Base Model will automatically propagate to the cells in the remaining tasks.

Tasks 2-6: Modifications to Program Designs

Tasks 2-6 each have three distinct activities (one for each school level) that focus on the changes in instructional program design with respect to varying low-income, English Learner, Special Education levels and enrollment size. For these remaining tasks, panels should not work to recreate the entire instructional program. Instead, panels should focus primarily on any changes in the program design resulting from the changes in student demographics or enrollment presented in the task.

Task 2: A change from Low Poverty to a High Poverty

Activity 1: Program Design Modification

Use the questions below to guide your deliberations for this task. Please refer to your **TASK DEMOGRAPHICS WORKSHEET** to see the change in student poverty we are asking you to consider relative to the **BASE MODEL.**

Elementary School Program

A change from Low Poverty to a High Poverty model

Please describe how a change in the percentage of students in poverty from the level in the Base model (Task 1) to the **High Poverty** model (in Task 2) would affect the base program designed to achieve the outcome goals.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

Middle School Program

A change from Low Poverty to a High Poverty model

Please describe how a change in the percentage of students in poverty from the level in the Base model (Task 1) to the **High Poverty** model (in Task 2) would affect the base program designed to achieve the outcome goals.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

High School Program

A change from Low Poverty to a High Poverty model

Please describe how a change in the percentage of students in poverty from the level in the Base model (Task 1) to the **High Poverty** model (in Task 2) would affect the base program designed to achieve the outcome goals.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

Activity 2: Resource Specification

When you have completed modifications to the instructional program designs for all tasks**,** you may open the COST MODEL worksheets and begin to specify the resources necessary to deliver the instructional programs. Your facilitators will provide assistance with using the worksheets and be available throughout the deliberations for questions. When specifying resources, you should feel free to make further modifications in your program designs as necessary. The following are some general guidelines and tips for entering information into the worksheets:

- Please enter data only in the white (open) cells in the worksheet.
- The white cells in Task 2 are pre-populated with the numbers based on those you entered for the Base Model. You need only enter new values in the Task 2 cells for those numbers that should be changed relative to the Base Model.

Task 3: A change from High Poverty to a High Poverty, High EL Model

Activity 1: Program Design Modification

Use the questions below to guide your deliberations for this task. Please refer to your **TASK DEMOGRAPHICS WORKSHEET** to see the change in percent English Learners we are asking you to consider relative to the **HIGH POVERTY MODEL.**

Elementary School Program

A change from High Poverty to a High Poverty, High EL model

Please describe how a change in the percentage of ELs from the level in the High Poverty model (Task 2) to the **High Poverty, High EL** model (in Task 3) would affect the high poverty program designed to achieve the outcome goals.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

Middle School Program

A change from High Poverty to a High Poverty, High EL model

Please describe how a change in the percentage of ELs from the level in the High Poverty model (Task 2) to the **High Poverty, High EL** model (in Task 3) would affect the high poverty program designed to achieve the outcome goals.

If yes, please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

High School Program

A change from High Poverty to a High Poverty, High EL model

Please describe how a change in the percentage of ELs from the level in the High Poverty model (Task 2) to the **High Poverty, High EL** model (in Task 3) would affect the high poverty program designed to achieve the outcome goals.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

Activity 2: Resource Specification

When you have completed modifications to the instructional program designs for all tasks**,** you may open the COST MODEL worksheets and begin to specify the resources necessary to deliver the instructional programs. Your facilitators will provide assistance with using the worksheets and be available throughout the deliberations for questions. When specifying resources, you should feel free to make further modifications in your program designs as necessary. The following are some general guidelines and tips for entering information into the worksheets:

- Please enter data only in the white (open) cells in the worksheet.
- The white cells in Task 3 are pre-populated with the numbers based on those you entered for the High Poverty Model. You need only enter new values in the Task 3 cells for those numbers that should be changed relative to the High Poverty Model.

Task 4: A change from the Base Model to a High Number of "Basic" Special Education Students (Basic SE) Model

Activity 1: Program Design Modification

Use the questions below to guide your deliberations for this task. Please refer to your **TASK DEMOGRAPHICS WORKSHEET** to see the change in students in special education we are asking you to consider relative to the **BASE MODEL.**

Elementary School Program

A change from the Base Model to Basic SE model

Please describe how a change in the number of students with disabilities from the level in the Base model (Task 1) to the **Basic SE** model (in Task 4) would affect the base instructional program designed to achieve the outcome goals.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

Middle School Program

A change from the Base Model to Basic SE model

Please describe how a change in the number of students with disabilities from the level in the Base model (Task 1) to the **Basic SE** model (in Task 4) would affect the base instructional program designed to achieve the outcome goals.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

High School Program

A change from the Base Model to Basic SE model

Please describe how a change in the number of students with disabilities from the level in the Base model (Task 1) to the **Basic SE** model (in Task 4) would affect the base instructional program designed to achieve the outcome goals.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

Activity 2: Resource Specification

When you have completed modifications to the instructional program designs for all tasks**,** you may open the COST MODEL worksheets and begin to specify the resources necessary to deliver the instructional programs. Your facilitators will provide assistance with using the worksheets and be available throughout the deliberations for questions. When specifying resources, you should feel free to make further modifications in your program designs as necessary. The following are some general guidelines and tips for entering information into the worksheets:

- Please enter data only in the white (open) cells in the worksheet.
- The white cells in Task 4 are pre-populated with the numbers based on those you entered for the Base Model. You need only enter new values in the Task 4 cells for those numbers that should be changed relative to the Base Model.

Task 5: A change from the Basic SE Model to a High Number of "Intense" and "Complex" Special Education Students (Intense and Complex SE) Model

Activity 1: Program Design Modification

Use the questions below to guide your deliberations for this task. Please refer to your **TASK DEMOGRAPHICS WORKSHEET** to see the change in students in special education we are asking you to consider relative to the **BASIC SE MODEL.**

Elementary School Program

A change from the Basic SE Model to Intense and Complex SE model

Please describe how a change in the number of students with disabilities from the level in the Basic SE model (Task 4) to the **Intense and Complex SE** model (in Task 5) would affect the base instructional program designed to achieve the outcome goals.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

Middle School Program

A change from the Basic SE Model to Intense and Complex SE model

Please describe how a change in the number of students with disabilities from the level in the Basic SE model (Task 4) to the **Intense and Complex SE** model (in Task 5) would affect the base instructional program designed to achieve the outcome goals.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

High School Program

A change from the Basic SE Model to Intense and Complex SE model

Please describe how a change in the number of students with disabilities from the level in the Basic SE model (Task 4) to the **Intense and Complex SE** model (in Task 5) would affect the base instructional program designed to achieve the outcome goals.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

Activity 2: Resource Specification

When you have completed any necessary modifications to your instructional program design**,** you may open the COST MODEL worksheets and begin to specify the resources necessary to deliver the instructional programs. Your facilitators will provide assistance with using the worksheets and be available throughout the deliberations for questions. The following are some general guidelines and tips for entering information into the worksheets:

- Please enter data only in the white (open) cells in the worksheet.
- The white cells in Task 5 are pre-populated with the numbers based on those you entered for the High Special Education (Basic) Model. You need only enter new values in the Task 5 cells for those numbers that should be changed relative to the High Special Education (Basic) Model.

Task 6: A change from the Base Model to a Smaller School

Activity 1: Program Design Modification

Use the questions below to guide your deliberations for this task. Please refer to your **TASK DEMOGRAPHICS WORKSHEET** to see the change in school size we are asking you to consider relative to the **BASE MODEL.**

Elementary School Program

A change from an average to a small school (Task 6)

Please describe how changing to a small school would require changes in the program design.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

Middle School Program

A change from an average to a small school (Task 6)

Please describe how changing to a small school would require a change in the program design.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

High School Program

A change from an average to a small school (Task 6)

Please describe how changing to a small school would require changes in the program design.

Please enter modifications and rationale below **(**the box will automatically expand to fit your narrative).

Activity 2: Resource Specification

When you have completed any necessary modifications to your instructional program design**,** you may open the COST MODEL worksheets and begin to specify the resources necessary to deliver the instructional programs. Your facilitators will provide assistance with using the worksheets and be available throughout the deliberations for questions. The following are some general guidelines and tips for entering information into the worksheets:

- Please enter data only in the white (open) cells in the worksheet.
- The white cells in Task 6 are pre-populated with the numbers based on those you entered for the Base Model. You need only enter new values in the Task 6 cells for those numbers that should be changed relative to the Base Model.

Task 7: District and Regional SE Services and Resources

Activity 1: Program Design Modification

Using the questions below, each panel should describe district and/or regional level services provided for SE students. Please remember that these resources and services should complement school level instructional programs to provide adequate educational opportunity for all Special Education students. In addition, panels will have the opportunity to review the work completed in the Base Model when the panels reconvene.

What staff and non-personnel expenditures are needed to provide related services not already captured in your school prototypes for all SE students (e.g., those served in neighborhood schools, district programs, or special school placements) and how will these services be delivered?

Please assume that these are related services that may be required by only a relatively small percentage of students in any given school and would therefore likely be more efficiently provided out of the central district office.

Please enter description and rationale below **(**the box will automatically expand to fit your narrative).

Activity 2: Resource Specification

Once you have completed your PROGRAM DESIGN narrative for these district-level elements, please specify the resources necessary to deliver each of these programs and services using the district-level worksheet (DISTRICT_SP _ED) in the COST MODEL. The COST MODEL also asks sub-panelists to identify and describe the desired caseloads for these personnel.

Expert Briefs

AIR®
Advancing Evidence.
Improving Lives.

Essential Elements for Successful Schools:

Expert Briefs on the Essential Elements of Successful Schools Serving At-Risk Students, English Learners and Students with Disabilities

Table of Contents

Essential Elements for Successful Schools:

Expert Briefs on the Essential Elements of Successful Schools Serving At-Risk Students, English Learners and Students with Disabilities

Introduction

As background for the members of professional judgment panels, AIR commissioned the papers in this booklet from four nationally recognized education experts. Each of these experts was asked to prepare a research paper with brief descriptions of elements that need to be present in *successful* schools serving diverse student populations. Each of the papers in this booklet explores how variations in student need might impact the need for additional resources, programs, and services. In addition, the papers include information on evidence-based research regarding the most efficient of achieving the educational goals and objectives through improving the allocation and utilization of school resources.

Ultimately, none of the information presented in these papers is intended to be prescriptive in telling schools and districts how to spend their money. It is simply meant to provide background information on existing research evidence that will help the PJPs in their deliberations to consider some realistic parameters describing effective resource allocation patterns.

This expert panel includes the following individuals:

- **Professor Henry Levin** of Columbia University has prepared a paper about successful programs for economically disadvantaged and at-risk students.
- **Professor Margaret McLaughlin** of the University of Maryland presents her paper focusing on the factors that contribute to successful programs for students with disabilities.
- **Professor Kenji Hakuta** of Stanford University presents information on the design elements necessary to appropriately serve students who have been identified as English learners.
- **Dr. Anthony Cavanna**, a former superintendent of schools with a distinguished career as an educator, presents his practitioner perspective on what elements need to be present for successful schools and districts.

Improving Education For At-Risk Students

Professor Henry M. Levin
Teachers College, Columbia University

EXECUTIVE SUMMARY

In the complex world of school effectiveness, educational reform requires that we set out what is known about resource allocation policies and student achievement. The following is a summary.

Guiding Principles

- In choosing educational strategies, take into account effectiveness, costs, and implementation.
- Effectiveness is the likely impact of the strategy on student achievement and other outcomes.
- Cost is the value of resources that must be used to apply the strategy.
- Implementation is the probable success in getting the strategy in place to operate effectively.

General Resource Strategies

Teachers

Higher salaries and good benefits and working conditions will attract a larger talent pool and reduce turnover. Combine these with improvements in recruitment, selection, professional development, and evaluation to capitalize on an increased talent pool.

- Seek teachers drawn from more selective undergraduate institutions.
- Seek teachers with an academic major in a subject area.
- Seek teachers with at least five years of experience.
- Seek teachers with strong performance on verbal and content area tests.

Professional Development

- Develop coaching models with observation of teachers and feedback.
- Tailor professional development to teacher and curriculum needs.
- Perform careful assessment of teacher performance before granting tenure.

Class Size

- Reduce class size, especially for at-risk students (no larger than 20 in early grades).
- Differentiate class size by subject and student need—not across the board.

Leadership

- Attract teachers with high salaries, benefits, and large scope for decision-making.
- Offer strong professional development and evaluation of performance.
- Provide bonus incentives for achievement of specific goals.

Support Personnel

- Define and assign personnel roles carefully for each compelling need.
- Provide professional development and assessment.

Curriculum

- Emphasize depth rather than breadth.
- Hold intensive workshops to bring all students to high levels.
- Provide enrichment opportunities such as Advanced Placement classes.

Co-curricular and Extracurricular Activities

- Provide attractive support for engagement and academic programs.
- Emphasize quality and choose carefully with competition for resources in mind.

Additional Learning Time

- Consider longer school days and school years, after-school programs, and summer school.
- Need meaningful content and engagement and strong personnel to be effective.

Technology

- Use technology as an instructional tool where it has the power to improve instruction.
- Provide adequate capacity for access to Internet and utilities such as writing.

Student Diversity

- Seek ways to increase racial and socioeconomic student diversity.
- Emphasize quality and incentives to go to diverse school, not compulsion.

Comprehensive School Reform

- Consider model of overall school reform only if there is the will and capacity to fully implement it over the long run.

Preschools

- Offer quality preschool programs to prepare children for success in early childhood.

High Schools

- Emphasize highly supportive high schools with frequent student monitoring and assessment and high academic standards, as well as tutoring, workshops, and other opportunities to close learning gaps.

Expert Brief

Purpose of This Brief

Consideration of adequacy in educational finance must be based upon what the funding buys and its effectiveness. For reasons that will be described later, there is no guarantee that funds spent in a specific way will assure particular educational results, but spending the funding in certain ways is more likely to be successful than spending it in other ways. Over time a reasonable consensus seems to have emerged on the effectiveness of devoting resources to certain spending strategies. The purpose of this report is to provide an overview of what we know benefits educationally at-

risk students. "Educationally at-risk" students are viewed as pupils who are at high risk of educational failure in conventional schools because they lack the resources in their homes, families, and communities that are associated with school success. Such students are found in disproportionately high numbers among immigrant and minority families as well as families in poverty and with low parental education. They are also overrepresented among families whose first language is other than standard English and those headed by a single parent. However, these categories of identification are only indicators of populations that include large portions of educationally at-risk students. They should not be used as definitions of at-risk populations because many students who come from these circumstances are successful. Our goal should be to increase substantially the number of successes. A good overall source on this topic is the book by Natriello, Pallas, and McDill (1990).

Three Criteria

In considering particular resource strategies, there are three criteria that need to be considered. The first and most obvious is that of the **effectiveness** of the strategy in raising student achievement and other valued school outcomes. In most cases the documented evidence is limited to test scores and graduation rates, so other measures of school effectiveness have not been considered directly, even though they should be given consideration in school resource decisions. More recently there has been attention to healthy social and emotional development—a goal that has important implications for educational and adult competence.

One concern in reviewing the evidence is not to be seduced by the word "significant effects," since this is just a statistical term which means that any measured advantage was not likely to be found by chance. It does not mean that the advantage is significant in the sense of being a large effect, and the most microscopic effects can be found to be statistically significant if the statistical sample of analysis is large enough. Thus, one must also judge from the results whether the apparent effect size or advantage of a resource intervention is of sufficient magnitude to consider it important.

The second criterion is that of the **cost** of the resource strategy. Costs are sometimes ignored or forgotten as decision-makers revel in findings of effectiveness and forget that the costs may be excessive for what appears to be an effective strategy. Although this paper will not estimate the costs of each strategy, decision-makers should focus on both effectiveness and costs (Levin, McEwan, Belfield, Bowden, & Shand, 2017). In some cases, strategies that have lower apparent effectiveness in terms of achievement gains have much higher gains relative to each dollar of expenditure.

For example, a study in the 1970s found that 7 minutes a day of computer-assisted instruction of the drill-and-practice type had as large an effect on mathematics achievement as 25 minutes a day of teacher focus on drill-and-practice. But at that time, the computer-assisted instruction would have been about 25 percent of total per-pupil costs, requiring dramatic reductions in other programs, while the additional teacher time would have been only about 6 percent of per-student expenditure, requiring a much smaller reallocation or additional financing. Studies of adult tutoring show very large gains in achievement, but very small gains relative to cost because of the very high cost of paid personnel time when allocated to individual students (Levin, Glass, & Meister, 1987). Thus, many tutoring programs use cross-age tutoring among students or use volunteers such as college students. While the achievement outcomes are somewhat less than with trained, adult tutors, the cost-effectiveness is considerably higher.

The third criterion is that of **implementation**. The educational process is not a mechanical one in which one simply feeds in inputs and predictable outputs ensue. Rather, the success of any resource strategy depends heavily on the implementation of that strategy in terms of the leadership, effort, and fidelity of the application. Even the educational improvement produced by such mechanical changes as reductions in class size, something that can be legislated, is conditioned substantially by whether teachers do something different with smaller classes to take advantage of the change. Researchers have found that many strategies that have been found to improve school outcomes in pilot settings fail to do so when they are expanded to other sites because the implementation needs (e.g., leadership, effort, teacher professional development) are not honored (Vernez, Karam, Mariano, & DeMartini, 2006). Moreover, context is important. In some contexts the necessary accompanying resources to make an intervention effective will be available and in others they will not. Available facilities, leadership, and teacher talents can make a difference in whether a particular curriculum approach will have a positive impact. Thus, implementation efforts must consider these aspects as well as the features of the specific intervention. In what follows, I will provide persistent reminders that how one implements resource use is as important as the resource strategy itself in accounting for educational results.

"Informed" Opinions on What Works

It would be marvelous if we had a repository of reliable information on all of those resource strategies that might be shown to work for at-risk students. If we had randomized trials of all or many of them, we might proceed in that direction. Unfortunately, even the major efforts in recent years have found relatively few reliable evaluations, even through the substantial efforts of the What Works Clearinghouse. Any attempt to identify which strategies seem to be effective must rely heavily on interpretation of a largely incomplete evidence base. Nevertheless, there are individual and multiple evaluations of some interventions and considerable experience with others. I will attempt to combine my reading of the literature and assessment of specific evaluations with my experience in working with a large number of schools serving at-risk students in my previous role as the Founder and Director of the Accelerated Schools Project, a national school reform established in 1986 and covering more than 1,000 schools in 41 states (Finnan & Levin, 2006). Thus, what follows is a blend of statistical findings with direct experience and judgments that might be characterized as "informed" opinions.

Funding and Student Outcomes

One of the most important debates about educational funding is the question of whether school funding can be used to address the needs of at-risk students. Skepticism was expressed by the famous Coleman Report (Coleman et al., 1966) that looked statistically at the relations between academic achievement and school resources and found only modest relations. This was followed by many economic studies using available data with mixed results. Different researchers interpreted the results as supporting or not supporting additional educational investment as a solution (e.g., see Hanushek, 1989; Hedges, Laine, & Greenwald, 1994).

One of the major problems was that the data and statistical methods used in these studies were inadequate to meet the challenge of measuring school resources adequately, and separating the effects of family, community, and school investments, which overlap substantially. That is, more advantaged families tend to live in communities with more educational advantages and send their children to better-endowed schools, all combining to produce greater student achievement and

educational attainment. The research frameworks that were used were inadequate to separate out the unique effects of funding from the other overlapping influences.

But recent studies using more sophisticated methods and data and enlisting causal methods of analysis have uncovered powerful impacts of funding on educational attainment and adult income. For example, Jackson, Rucker, & Persico (2015) studied the effects of additional funding for children in districts with low expenditures in response to state school funding challenges. They found that children from low-income families that had benefitted from the increases in educational spending for 12 years experienced greater educational attainment, higher adult incomes, and reductions in poverty. There was a 20 percentage point reduction in poverty relative to students from low-income families who did not benefit from higher funding. A 10 percent funding advantage resulted in a 13 percent increase in income among children from the lowest income families and a two-thirds reduction in adult inequalities between children from poor and non-poor families. A 10 percent increase in school spending was associated with about a 4 percent increase in base teacher salaries and an almost 6 percent reduction in student–teacher ratios.

Measuring School Effects

Clearly, the assessment of improvement in the education of at-risk students depends upon what is measured as school effectiveness. The two most common measures are those of standardized test scores and educational attainment (such as high school graduation and postsecondary participation). The No Child Left Behind (NCLB) program that dominated federal funding for at-risk students from 2001 to 2016 was particularly focused on test scores as measures of accountability. NCLB was replaced by the Every Child Succeeds Act (ESSA) in December 2015, which allows states more flexibility in selecting school outcomes in meeting the requirements to receive federal funding for the education of at-risk populations.

These changes come at an opportune time, because educational research and policy are shifting to encompass a broader range of outcomes of education. More specifically, the role of social and emotional development of children has risen in importance. These outcomes are necessary not only for becoming proficient learners, but also for productive personal, social, family, and work success.

To meet the economic, political, social, and personal demands for competency, much more is required of students and adults than just cognitive proficiencies as measured by test scores. Individuals must develop interpersonal skills that enable them to relate to others productively in many different social situations. They must also develop the intrapersonal skills that include good judgment and strategies for meeting their own needs in effective ways. (Levin, 2012). These requirements are not only important for learning, but recent research provides strong evidence that they may be more important for worker productivity than test results (Heckman & Kaust, 2012).

One of the challenges is deciding which of the many potential social and emotional needs should be the focus of schools, given limited instructional time and many existing demands on teachers. Gehlbach (2017) suggests that schools should choose a few key priorities in these domains rather than trying to cover too many dimensions. He asserts that research reinforces the importance of placing a prime focus on social connectedness (appropriate behavior in relating to others), motivation, and self-regulation (monitoring and control of one's own emotions and activities). At this

time, many researchers and educators are engaged in studies and applications of social and emotional learning, so new initiatives in this direction will be informed by results (Durlak, Domitrovich, Weissberg, & Gullotta, 2015).

General Resource Strategies

General resource strategies are those that can be used at any level of schooling.

Teachers

There is wide recognition that the quality of the teacher in the classroom is the most important single influence on the quality of education. Higher teacher salaries are capable of drawing a larger pool of talent into teaching. For any given level of talent, the salaries, benefits, and working conditions must be adequate to attract promising teachers away from other occupations which can enlist their talents. Many of the best potential teacher candidates and classroom teachers are lost to other occupations where the rewards are considerably greater. In one of the best statistical studies, it was found that an increase in teacher salaries of about 10 percent was associated with a rise in high school graduation of about 6 percentage points a decade later (Loeb & Page, 2000). Other studies have shown less teacher turnover with higher salaries (Murnane & Olson, 1990).

Higher teacher salaries (or benefits and better working conditions) should not be viewed as a magic elixir. Fully capitalizing on higher teacher salaries may require very large changes in teacher recruitment, selection, professional development, and evaluation. Many school districts have traditional arrangements in which they set minimal hiring requirements and simply rely primarily on recommendations of placement officials at local colleges and universities. To take advantage of a larger pool of talent, school systems must gather more detailed information on academic qualifications, teaching performance (through sample lessons and feedback from teaching internships), and candidate knowledge of their teaching fields (e.g., high scores on Praxis II), and must use interviews with panels of knowledgeable teachers and administrators. Increased talent must also be cultivated by continuous professional development of high quality that is pertinent to teacher duties and that makes "coaches" available to observe their teaching and assist them. With a larger pool of talent, only the best teachers should be retained. This suggests a superior system of teacher evaluation that amasses data on teacher performance and growth during the probationary period and heavy dependence on evaluative data for awarding tenure.

Good teaching can be observed directly in classrooms as well as inferred from student performance and from such assessment devices as value-added performance of students—a measure of improvement in student achievement (Harris, 2011). But, it can also be partially informed from the general research on characteristics of effective teachers. That research suggests that student academic progress is linked to teacher performance on ability and achievement tests, quality of the teacher's undergraduate institution, an academic major in the subject taught (with the strongest evidence for mathematics), and at least some teaching experience (Wayne & Youngs, 2003). With respect to the latter finding, studies show that student achievement grows as teachers acquire their first 5 years of experience, but the provision of meaningful professional development opportunities for experienced teachers may increase their effectiveness beyond what is found in these studies. Sadly, much professional development seems to have little impact, so it must be chosen and designed carefully to meet instructional needs in an effective way.

There is virtually no evidence that a master's degree (or higher) is tied to student achievement. However, this should not be interpreted as suggesting that more teacher education **cannot** be effective. It is generally acknowledged that more education can be an important part of teacher professional development if it is of high quality and linked closely to the instructional demands placed upon teachers. However, additional salary increments should not be randomly given for the accumulation of additional courses of dubious relevance or value, as is automatically done in most school districts.

It is not only the overall level of teachers' salaries that should be considered, but also the structure of the salary scales themselves. As mentioned, instead of providing salary increments automatically, such additional compensation should be linked to approved further study that is demonstrably related to student needs. Salary increments might also be given for undertaking additional responsibilities, such as specific school projects, or to talented teachers who can provide instructional assistance to other teachers (e.g., much as is expected of teachers who have been promoted to Tier III of the current licensure system in New Mexico). Salary increments also need to be considered for attracting teachers to schools and teaching areas that have experienced persistent shortages of qualified teachers and to attract the highest quality teachers to the schools with greatest need. Single, lockstep salary schedules do not have the flexibility to attract teachers to meet these challenges.

Class Size Reduction

Class size reduction is one of most common paths for improving instruction. Based upon a range of studies, most notably the Tennessee class size experiment, it appears that class size reduction does have a positive effect on student achievement. In Tennessee, the average effect on achievement of reducing class size from about 24 to 15 in kindergarten through grade 3 was equivalent to about 8 percentiles for all groups, but it was about twice as high for low-socioeconomic-status and minority populations as for the non-poor and white students. Students who experienced the smaller class sizes for four years also had far higher graduation rates. For every 100 low-socioeconomic students, those with 4 years of smaller classes graduated 18 additional students from high school relative to similar students who had not experienced smaller classes (Finn, Gerber, & Boyd-Zacarias, 2005).

In general there is consensus among experts that there are two considerations that must be weighed with the class size "solution." The first is that reductions in class size are costly. They require increases in teachers and classrooms that, even when facilities are properly amortized, require substantial cost increases relative to their increased effectiveness or "cost-effectiveness" (Levin, Glass, & Meister, 1987). The second is that class size reductions seem to be particularly effective strategies for improving the education of at-risk students, but are less crucial for students with stronger family resources. For example, Catholic schools with good achievement results commonly have class sizes in excess of most public schools, but with student enrollments that have fewer at-risk students. The resource solution is to use class size reduction selectively for those groups of students that will benefit most.

Leadership

There is wide agreement that the quality of school leadership is central to school performance. Unfortunately, there is little solid quantitative evidence tying leadership characteristics to student achievement. The major evaluation problem is that school leaders are removed from the class-

room, so their actions and decisions are mediated through their influence on teacher selection and effectiveness, which cannot be easily traced back to the leadership behavior. What we do know is that many features that make for great leaders in other types of service institutions are likely to be important in public schools, as well as some unique characteristics that are education-specific. These include academic background and accomplishments, interpersonal skills, communication effectiveness, understanding learning, ability to recognize good teaching, ability to engage school staff and students, problem solving, data analysis (e.g., on school performance), ability to allocate resources effectively, and so on. But many of these features are generic to good leaders everywhere, requiring that schools must compete with other institutions for talent. This means that salaries, benefits, and working conditions will make a difference in size and quality of the talent pool that will be attracted into school leadership positions, just as in teaching. But equally important is the careful recruitment, selection, development, and evaluation of talent in choosing and maintaining leadership. Beyond salaries and the efforts at recruitment, selection, development, and evaluation, it is also important to consider incentive pay, or bonuses, for principals and other school leaders for achieving particular goals that contribute to school success, such as attendance, teacher collaboration, a stable teaching force, and student achievement.

Support Personnel

Schools require support personnel to reinforce and assist the core functions of teaching and learning. However, the precise number of such personnel and their roles clearly depend upon the characteristics of the students. Provision of school psychologists is necessary to evaluate children for special education, as well as to provide short-term assistance to some children and referrals to other agencies for children with more serious difficulties. This is also true for routine health and dental screening, as well as meeting emergency health needs. Such personnel are often provided by the school district on a scheduled or as-needed basis. This is also true with counselors, where the school level and student needs are the main criteria for assignment. Perhaps the most problematic category is that of classroom aides. The Tennessee class size study also included assigning a full-time aide to each of the larger classes, but found virtually no difference in student achievement between classrooms with or without aides. My guess is that where aides have sufficient education, training, and supervision to assist the classroom teacher, by tutoring and working with small groups of students with special needs (e.g., reading or math groups) or assisting parents, there can be an impact on achievement. But where the aide is charged primarily with "housekeeping" chores, there will be no such impact. This suggests careful hiring and staff development, as well as teacher education on productive employment of classroom aides.

Wraparound Services

Students who are educationally at risk often have needs that go beyond a conventional classroom or school. These needs, if unmet, may represent obstacles to learning. Such issues may include inadequate nutrition, health issues, family dysfunction, and inappropriate housing arrangements. Addressing them may require tutoring, health services, meals, counseling and psychological services, and other responses that school staff can't fully provide. A school with "wraparound" services is sometimes called a community school, because it enlists assistance from community organizations and volunteers. The school provides a systematic assessment of the needs of all children and seeks services for them by public entities or philanthropic organizations that match their needs.

Community schools with "wraparound" services seek health, nutritional, tutoring, and counseling services from the entire community as well as those available at schools. Dental care, corrective lenses, adequate meals, and attention to and assistance on family issues are all necessary to enable children to focus on learning. When there is a systematic and comprehensive approach to providing needed services, drawing on all available resources, many learning obstacles are overcome, yielding better educational outcomes (Walsh et al., 2014).

Curriculum

The area of curriculum is controversial. Thirty years ago the main goal was to provide as large a number of curriculum and program offerings as possible to accommodate the interests and needs of every child. This was often thought of as a rich curriculum. But, since the last decade of the 20th century, opinion has gone in the opposite direction, with an emphasis on concentrating resources on a set of core offerings. The reasons for this are twofold. First, the larger curriculum offering promoted more tracking and diluted versions of courses for at-risk students. The move to more heterogeneous classes, where all students are expected to learn at a higher level, has taken precedence in the last two decades, suggesting that fewer different courses or sections are required (Burris, Heubert, & Levin, 2006; Oakes, 2005). Second, the broadness of the "rich" curriculum and the different versions of core courses that emerged placed more emphasis on the breadth of program offerings than on the quality of instruction. It is highly recognized today that the quality of instruction is the dominant variable contributing to learning, and a focus on fewer courses of high content and excellent instruction requires a more manageable curriculum. For example, the International Baccalaureate (IB), an international quality movement headquartered in Switzerland, focuses on the academic requirements of a rather compact curriculum with an emphasis on high standards and quality of curriculum for all students. This movement has been expanding in the U.S.

Another effort in this direction is that of the Advanced Placement (AP) program, where students are encouraged to take courses that may lead to college credit if their examination score (administered by the College Board) is high enough. Recent research has found that AP classes have a particularly positive effect on college success of at-risk students. Several states provide incentives for AP courses by paying schools financial bonuses for such courses, as well as by covering the examination costs that must be paid by students.

Co-curricula and Extracurricular Activities

There is little consensus on how much attention should be focused on activities outside of the classroom. In general, the view is that many of these activities are important to develop talents and interests that are not a focus in regular classrooms, and that they have a special role in the development of interpersonal skills. Certainly athletic teams serve these purposes, as well as building community and school solidarity, along with school bands, orchestras, and theater groups. For some students, these are the prime attraction for engagement in their school, and they contribute to attendance and academic achievement. Clearly, they serve an important function, but there is little or no research on their contribution to student achievement. There is also reason to believe that they are more important for at-risk students whose families are less able to afford the private lessons and participation that these opportunities provide. A hint of impact on academic performance can be derived from the research of James Catterall which shows that stu-

dents who are similar in other respects show higher achievement in schools with good arts programs (Catterall, Deasy, et al., 2002).

Time in Learning

In recent years there has been considerable discussion and implementation of more time in learning through longer school years and school days, as well as supplemental summer school and after-school programs. Logically, more time in school would appear to be related to greater achievement, but the results have been disappointing. For example, a cost-effectiveness study that would add an hour a day to elementary schools, devoted equally to math and reading, found that such an intervention showed the lowest cost-effectiveness ratio (i.e., effectiveness per dollar expended) of the four interventions being compared (peer tutoring, computer-assisted instruction, class size reduction, and longer school days) (Levin, Glass, & Meister, 1987). Important research has found that at-risk students lose much of their achievement gains over the summer, and that finding has initiated quests for longer school years (Alexander, Entwisle, & Olson, 2001). However, the record for improving achievement through summer programs is weak, as it is for after-school sessions (Cooper, Chatton, Valentine, & Muhlenbruck, 2000; Scott, Little, Hamann, & Jurs, 2002).

What seems clear is that what is done with the time is at least as important as the amount of time that is added. Longer school days and school years, or summer schools and after-school programs, need to be tailored to the needs of the students and devoted to the highest quality experiences that will motivate pupils to use the time to advance (Birmingham, Pechman, Russell, & Mielke, 2005). As they currently exist, these programs are more likely to be "add-ons" that are not well thought through or planned and that do not draw upon the highest quality of instruction. This is another area where implementation is at least as important as the provision of resources.

Technology

The area of educational technology and its use is so broad that generalization is impossible in gauging its impact on the achievement of at-risk students. However, it is clear that schools need computers and wide access to the Internet for everything from word processing to carrying out research. That is, the use of information technologies broadens the prospects for learning. Such provisions can also be particularly important in small schools and in rural areas, where they may provide access to distance learning opportunities that are not available locally. However, as in other areas of application, the specific ways in which technology is used will determine its influence on student achievement, and it is clear that in many schools not much thought has been given to how educational technologies can be used to maximum advantage as a tool for learning (Wenglinsky, 1998). The provision of educational technologies must be accompanied by professional development and applications to learning in general, and to particular parts of the curriculum.

Of particular importance is the increased use of online teaching and learning approaches, which are claimed to have superior results to classroom or face-to-face teaching. However, there are few systematic and rigorous studies comparing these. Of greater recent currency is the "flipped classroom" where face-to-face teaching is complemented by online sessions that reinforce and support classroom instruction. This combination seems more promising in improving educational outcomes, but it is also lacking sufficient rigorous study.

Student Diversity

What is emerging in the literature is the importance of mixing at-risk students with those who are not at risk. It appears that when at-risk students are in schools with a majority of students who are more advantaged, student achievement is substantially higher. Precisely why this occurs is not clear. It may be that such schools attract better teachers, or that there are higher expectations for all students, or that the curriculum is stronger for all students. A different interpretation is that high educational aspirations and expectations of student peers inform the climate of the school and raise expectations and academic performance of all students. A recent paper, based upon a sophisticated econometric study of the rich data set in Texas, found that by reducing racial segregation and inequality in teacher experience, the black–white achievement gap between grades 3 and 8 could be reduced (Hanushek & Rivkin, 2007).

The financing implications might be to provide incentives to schools to provide high-quality magnet schools with transportation or other incentives to create excellent schools that will be accessible and attractive to students from many different backgrounds. Of course, this is a controversial political issue because the general public associates the quality of education largely with the demographic composition of students in the school. Thus, increasing diversity of student bodies must be done carefully, with an emphasis on the quality of the educational process, educational outcomes, and attractiveness of the educational program as the highest priorities rather than just mixing students.

Comprehensive School Reform

The last two decades have witnessed attempts at comprehensive school reform—the transformation of the entire school and its program along the lines of a cohesive educational philosophy and set of goals. This approach is differentiated from the more piecemeal attempt at educational reform, which changes one or two features at a time, such as class size, curriculum, technology, professional development, instructional materials, and other disparate dimensions. Comprehensive school reform focuses on making simultaneous changes in all features of the school to provide cohesion in meeting set goals. Despite the compelling logic of this approach, it is highly unpredictable, because the capacity of schools and school leadership to make the necessary changes is much more variable than initially expected. In the cases with high levels of implementation, schools with at-risk students have been transformed into highly productive institutions. In other cases, the schools simply go through the motions and little or nothing changes. In most schools adopting comprehensive school reform, implementation is only partially successful, and the gains are limited. While evaluations of most of the major comprehensive school reforms show some academic gains, they have tended to be modest and, for some models, costly (Borman, Hewes, Overman, & Brown, 2003).

A different approach to gaining comprehensive school reform is to convert a school to a charter school or to contract the operation of schools to a private educational management organization or EMO. Charter schools are public schools that are permitted considerable autonomy in their operations with public funding, have their own boards of directors, and receive waivers of most state and local laws and policies. Their advocates suggest that their autonomy from the larger legal and bureaucratic restrictions, and their ability to compete for students with conventional public schools, will raise student achievement, especially for at-risk students. Thus far there is little evidence that this prediction is supported, as public schools with comparable students have

performed as well or even better (Bifulco & Bulkley, 2015). A large national study has found mixed results as well (CREDO, 2013).

The same conclusion is found for EMOs, despite their claim that their business practices will provide greater efficiency in operations. Here, too, the evaluations of performance have not provided supportive evidence of the claims. Better results are found for charter schools sponsored by charter management organizations (CMOs), although comparisons of all forms of charter schools with public schools show mixed results.

Preschools

One financial investment that seems to be promising for overall educational success is that of a quality preschool experience for at-risk students. Since such students lack the resources in their homes to prepare them for school success, a year or more of preschool experience has been shown to improve school readiness and improve their social and academic skills. What is particularly remarkable is the longevity of effects of preschool. When at-risk students who have attended preschool are compared in late adolescence or in adulthood with those who have not participated in preschool, the differences in favor of preschool participation are found to persist, in the form of greater educational attainment and better economic outcomes in terms of employment and earnings and less likelihood of being a public charge to the criminal justice system or public assistance. Two independently evaluated programs, Perry Preschool and the Chicago Child Parent-Center program, showed high school graduation rates of 19 percentage points and 11 percentage points higher than for similar children who had not been enrolled (Levin, Belfield, Muennig, & Rouse, 2007). They were also found to return as much as $3.50 in public benefits for each dollar of public cost. However, these programs are considered to be of high quality, and others such as Head Start have shown mixed success (Currie, 2001). The key is to assure that quality services are provided and that quality control is maintained (Barnett, 2011).

High Schools

Although the general resource strategies set out above also apply to high schools, it is important to single out recent attempts to improve high schools which are somewhat unique to that level of schooling. This is sometimes called the "small schools movement," but it is clear that small size is only an enabling reform that makes it somewhat easier to implement a common set of features. These features include (1) small school size, (2) high levels of personalization, (3) high academic expectations for all students, (4) regular monitoring of progress, (5) strong counseling, (6) parental engagement, (7) extended-time school sessions, and (8) competent and appropriate personnel for this type of school, including leadership personnel. There is wide agreement that these features should be implemented as a complete package rather than be implemented individually (Quint, 2006). Evidence on their effectiveness is found in the evaluation of First Things First by Quint et al. (2005), where the combined strategy considerably improved both test scores and graduation rates relative to comparison schools with similar students.

Postscript

To a large degree the conclusions in this paper are based upon the best evaluative evidence. However, there may be other strategies that are equally effective or even more so that have not been properly evaluated and do not show up in the evaluation literature. Therefore, in the formulation of effective resource studies for improving the education of at-risk populations, one must always be open to new and promising strategies which seem to be compelling and have at least some evidence of success. Finally, it is important once again to emphasize that the quality of implementation is the missing variable in discussions of adequacy financing. Quality must be constantly stressed, and must become a focus of new educational finance, through the consideration of how such financing provides incentives and accountability to be effective.

Henry M. Levin is the William Heard Kilpatrick Professor of Economics and Education at Teachers College, Columbia University and Director of the National Center for the Study of Privatization in Education, a non-partisan entity <www.tc.columbia.edu/NCSPE>. He is also the David Jacks Professor of Higher Education and Economics, *Emeritus*, at Stanford University where he served from 1968-99 after working as an economist at the Brookings Institution in Washington. From 1978-84 he was the Director of the Institute for Research on Educational Finance at Stanford, a federally-funded R. & D. Center. From 1986-2000 Levin served as the Director of the Accelerated Schools Project www.acceleratedschools.net, a national school reform initiative for accelerating the education of at-risk youngsters encompassing about 1,000 schools in 41 states.

Levin has held Fulbright Professorships in Barcelona and Mexico and is on the Guest Faculty at Beijing University. He has been a fellow of the Center for Advanced Study in the Behavioral Sciences and the Russell Sage Foundation. In 1992 the New York Times named him, in its special issue on educational reform, as one of "nine national leaders in education innovation". Levin has been the Editor of the *Review of Educational Research* and the President of the American Evaluation Association and a winner of its Gunnar Myrdal Award. He is also a recipient of the 2004 Outstanding Service Award of the American Educational Finance Association.
Levin is a specialist in the economics of education and human resources and has published 22 books and about 300 articles on these and related subjects. At present, he is doing research on educational reform, educational vouchers, cost-effectiveness analysis, costs to society of inadequate education, and educational privatization. His most recent books are: *Economic Evaluation of Education: Cost-Effectiveness and Benefit-Cost Analysis* (Los Angeles: Sage Publications, 2017); *Between Public and Private: Politics, Governance and the New Portfolio Models for Urban School Reform* (Cambridge, MA: Harvard Education Press, 2010); and *The Price We Pay: Economic and Social Consequences of Inadequate Education* (Washington, DC: The Brookings Press, 2007).

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English Language Learners

Kenji Hakuta
Stanford University

Expert Brief

Introduction

English learners are students from language minority backgrounds whose proficiency in the English language is nascent or still developing. English learners require appropriate services that (1) support their English language development, and (2) ensure continuous and full access to instruction in the academic content areas throughout their period of English language development. Furthermore, English learners have diverse needs, depending on key factors such as their proficiency and literacy in their native language, their entering level of English proficiency, and their length of time in the system. In addition, their family history and status may require special attention to targeted services that address inclusion into a safe school community, particularly during times of heightened fear of deportation of undocumented residents. Educators in classrooms, schools, and local district systems must work together to ensure that each English learner is provided appropriate services.

In this brief, I will describe the policy context and provide an account of the educational needs of English learners. This brief speaks directly to the educational needs of English learners and weaves together the multiple laws and policies that are leading toward a continuous improvement and system capacity-building model that fully integrates the needs of English learners.

Policy Levers/Contexts

Civil rights law, in particular Title VI of the Civil Rights Act, has been the key lever protecting equal and appropriate educational access for English learners. The most commonly adopted federal standard for determining an appropriate program for English learners that is in compliance with federal civil rights law (as unanimously decided in the 1974 U.S. Supreme Court ruling *Lau v. Nichols*) is based on a Fifth Circuit Court ruling, *Castañeda v. Pickard* (1981). The ruling helped establish the following "standards" to determine whether an approach taken to remedy the needs of English learners is appropriate:

(1) Is the program based on sound educational theory?

(2) Is the program effectively implemented?

(3) Has the program produced results to overcome language handicaps?

An adequate program, moreover, should be able to take poor outcomes and use them as an opportunity for continuous improvement, by improving program implementation or modifying the theory. These imply that all of the components used in addressing the framework—curriculum, teacher preparation, professional development, assessment and accountability frameworks, and leadership and community engagement—need to specifically support English learners.

In the arena of federal legislation, since 1968, Congress has made federal assistance funds available to support states and districts with EL students through Title VII of the *Elementary and Secondary Education Act* (ESEA; also known as the Bilingual Education Act), currently Title III of the *Every Student Succeeds Act* (ESSA). English learners have been the focus of ESEA not just

within Title III, but also in the main part of the law in Title I programs, in which the bulk of the local and state accountability (and funding and attention) reside. The most recent change in ESSA requires accountability for the EL subgroup for state academic assessments. Additionally, it includes progress toward English language proficiency as a required element of Title I accountability for English learners. The federal law therefore clearly states the expectation that English language proficiency development is as important as academic proficiency for English learners. Furthermore, the law requires an alignment of the state's English language proficiency standards with the state's academic standards.

The NASEM Report

The recent 2017 consensus study report from the NASEM offers important conclusions and recommendations for promoting the educational success of English learners. Many of the findings reinforce and expand on prior research syntheses, including earlier work from the California Department of Education[1] and national research syntheses (CREDE), and therefore should not be surprising to those familiar with the research. However, the conclusions of the NASEM report carry the authority of the National Academies and its careful and well-vetted approach to publishing consensus studies.

The following are findings from the NASEM report:

- English language development is a process that takes 5 to 7 years for those entering with emerging English, and therefore programming needs to take a long-term view, with benefits taking place from coherent and aligned instruction across that time period.
- English language development should take place as an integrated process simultaneous with academic content learning in addition to designated ELD and the development of bilingualism/biliteracy.
- Bilingualism provides benefits from the capacity to communicate in more than one language and may enhance cognitive skills, as well as improve academic outcomes.
- Establishing proper and consistent procedures and criteria for identifying, monitoring, and exiting English learners using appropriate assessment procedures—while developing professional capacity to use assessment results—constitutes a key lever for effective system improvement.
- The diversity of the EL population (e.g., newcomers, long-term English learners, students with interrupted formal education, students with disabilities, gifted and talented students, and student who have recently exited the EL category) necessitates pedagogy and educational support services that are differentiated and responsive.
- Brain development research reinforces the importance of the period from birth through early childhood in the areas of cognitive, social, and language development. There is great need for coherent, aligned support for dual language learners across the preschool and primary grade systems to begin developing their bilingual and biliterate capacities.

Finally, the NASEM report (pp. 7–20) also notes the importance of leadership and systems, and makes the following observations about effective local systems (the following bulleted points quote directly from the NASEM report, *emphasis added*):

[1] California Department of Education. (1984). *Schooling and Language Minority Students: A Theoretical Framework*; California Department of Education. (1986). *Beyond Language: Social and Cultural Factors in Schooling Language Minority Students*; and California Department of Education. (2010). *Improving Education for English Learners: Research-Based Approaches.*

- *Administrative leadership at the district and school levels takes responsibility* for initiating and sustaining instructional programs and practices that support the full academic development of all students, including ELs.
- *ELs are recognized as capable of learning whatever society expects all children to learn in school rather than as incapable of handling the school's curriculum until they master English.* This is a fundamental epistemological difference between schools that educate ELs successfully and those that do not.
- *Socioemotional support* is provided for both teachers and students through the creation of learning communities. In the successful districts and schools described, administrators recognized that educating students with complex and diverse needs could be very challenging for teachers, emotionally and physically. They, like their students, required collegial support from fellow teachers and administrators to accomplish all they were expected to do.
- *Teachers are encouraged to work collaboratively* and support one another to improve instruction. … Cross-disciplinary endeavors in planning and integrating instruction [are] critical in supporting language and literacy development across the curriculum.
- *Language-rich classroom and school environments* are promoted in which communication and self-expression are encouraged. Teachers are linguistically, culturally, and pedagogically prepared to meet the academic and sociocultural needs of ELs. Instruction is adapted based on frequent analysis of student performance in formative and summative assessments. School and community partnerships are encouraged to augment and enrich classroom-based learning.

EL Principles and Elements

Principle #1: ASSETS-ORIENTED AND NEEDS-RESPONSIVE SCHOOLS

Preschools and schools are responsive to different EL strengths, needs, and identities, and support the socioemotional health and development of English learners. Programs value and build upon the cultural and linguistic assets students bring to their education in safe and affirming school climates. Educators value and build strong family, community, and school partnerships.

A. The languages and cultures ELs bring to their education are **assets** for their own learning, and are important contributions to our learning communities. These assets are valued and built upon in culturally responsive curriculum and instruction and in programs that support, wherever possible, the development of proficiency in multiple languages.

B. Recognizing that **there is no single EL profile** and no one-size approach that works for all, programs, curriculum, and instruction must be responsive to different EL student characteristics and experiences. Students entering school at the beginning levels of English proficiency have different needs and capacities than do students entering at intermediate or advanced levels, as do students entering in kindergarten or in later grades, and the needs of long-term English learners are vastly different from recently arrived students (who in turn vary in their amount of prior formal education). Districts vary considerably in the distribution of these profiles, so there is no single program type or instructional approach that works across the board.

C. **School climates** and campuses are affirming, inclusive, and safe.

D. Schools value and build strong **family and school partnerships.**

E. Schools and districts develop a collaborative framework for identifying **ELs with disabilities** that supports culturally and linguistically inclusive practices, supports valid assessment practices and training, and develops appropriate IEPs with expertise specific to ELs; and develops a plan that addresses academic goals that take into account student language development, as called for in state and national policy recommendations.[2,3]

Principle #2: INTELLECTUAL QUALITY OF INSTRUCTION AND MEANINGFUL ACCESS

English learners engage in intellectually rich, developmentally appropriate learning experiences that foster high levels of English proficiency. These experiences integrate language development, literacy, and content learning as well as provide access for comprehension and participation through native language instruction and scaffolding. English learners have meaningful access to a full standards-based and relevant curriculum and the opportunity to develop proficiency in English and other languages.

A. Language development occurs in and through content and is **integrated** across the curriculum, including integrated ELD and designated content-based ELD (per ELA/ELD Framework).

B. Students are provided a rigorous, intellectually rich, standards-based curriculum with instructional **scaffolding** for comprehension, participation, and mastery.

C. Teaching and learning emphasize engagement, interaction, discourse, inquiry, and critical thinking—with the same **high expectations** for ELs as for all students.

D. ELs are provided **access to the full curriculum** along with the provision of EL supports and services.

E**.** Students' **home language** is (where possible) understood as a means to access curriculum content and as a foundation for developing English, and is developed to high levels of literacy and proficiency along with English.

F. Rigorous **instructional materials** support high levels of intellectual engagement, explicit scaffolding to enable meaningful participation by English learners at different levels of English language proficiency, and integrated language development and content learning, and also provide opportunities for bilingual/biliterate engagement appropriate to the program model.

G. English learners are provided choices of **research-based language support/development programs** (including options for developing skills in multiple languages) and are enrolled in programs designed to overcome the language barrier and provide access to the curriculum.

Principle #3: SYSTEM CONDITIONS THAT SUPPORT EFFECTIVENESS

Each level of the school system (state, county, district, school, preschool) has leaders and educators who are knowledgeable of and responsive to the strengths and needs of English learners and their communities, and utilize valid assessment and other data systems that inform instruction and continuous improvement; resources and tiered support are provided to ensure strong programs and build the capacity of teachers and staff to build on the strengths of, and meet the needs of, English learners.

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[2] California Department of Education. (2009). *Inventory of Services and Supports (ISS) for Students with Disabilities.* Special Education Division. Retrieved from the California Department of Education website: https://www.cde.ca.gov/sp/se/sr/issforswd.asp

[3] Park, S., Martinez, M. & Chou, F. (in press). *A Guide for States Creating Policies on the Identification of and Service Provision for English Learners with Disabilities*. Washington, DC: Council of Chief State Schools Officers.

A. **Leadership** establishes clear goals and commitments to English learners' access, growth toward English proficiency, academic achievement, and participation, and maintains a focus across the system, beyond compliance through the Master Plan and ELAC/DELAC regulations,[4] on progress toward these goals and continuous improvement.

B. The school system invests **adequate resources** to support the conditions required to address EL needs.

C. A system of culturally and linguistically valid and reliable **assessments** supports instruction, continuous improvement, and accountability for attainment of English proficiency, biliteracy, and academic achievement.

D. **Capacity building** occurs at all levels of the system, including leadership development to understand and address the needs of ELs, **professional development** and collaboration time for teachers, and robust efforts to address the teaching shortage and build a **pipeline** (recruitment and development) of educators skilled in addressing the needs of ELs, including bilingual teachers.

Principle #4: ALIGNMENT AND ARTICULATION WITHIN AND ACROSS SYSTEMS
English learners experience a coherent, articulated, and aligned set of practices and pathways across grade levels and educational segments, beginning with a strong foundation in early childhood and continuing through to reclassification, graduation, and higher education. These pathways foster the skills, language(s), literacy, and knowledge students need for college and career readiness and participation in a global, diverse, multilingual, 21st century world.

A. EL approaches and programs are designed for continuity, **alignment, and articulation** across grade and systems segments, beginning with a **strong foundation in early childhood** (preschool) and continuing through to reclassification, graduation, and higher education.

B. Schools plan schedules and resources to **provide extra time** in school (as needed) and build partnerships with afterschool and other entities to provide additional support for ELs, to accommodate the extra challenge facing ELs of learning English and accessing/mastering all academic content.

C. EL approaches and programs are designed to be **coherent** across schools within districts, across initiatives, and across the state.

Necessary Components for Local Implementation
For the effective implementation of programs for English learners, the following components need to be available:

1. Systemwide planning activities that engage parents and the community to clarify expectations that English learners are the responsibility of *all* educators, and not just the responsibility of bilingual teachers, English language development specialists, and the ELD/bilingual program.
2. Professional development programs that provide all teachers with instructional approaches and strategies that support language development throughout the school day to provide equitable opportunities for English learners to participate meaningfully in content instruction.

[4] School and District English Learner Advisory Committees (ELAC/DELAC). (November 6, 2016). Dear Colleague Letter from Tom Torlakson and Michael Kirst. Retrieved from the California Department of Education website: https://www.cde.ca.gov/nr/el/le/yr16ltr1107.asp

3. Targeted ELD programs, particularly in schools with newcomer students and students entering at beginning levels of ELD who are most in need of designated ELD time, and in schools with significant long-term EL students whose needs are in social and emotional learning and many of whom are dually identified as students with disability.
4. Curriculum materials across the content areas that provide specific supports to enable students at varying levels of ELD to engage with the content, and accompanying professional development for teachers enacting the curriculum.
5. Assessment tools and approaches that support formative assessment practices for teachers, and interim/benchmark indicators of progress for administrators that enable continuous monitoring of student language development that supports content learning.
6. Professional learning culture and professional time for teachers and school leaders to examine student learning, especially around language use and discourse practices by students around the content area (e.g., collaborative conversations, argumentation with claims and evidence, etc.).
7. Recruitment and retention of bilingual teachers to staff program models where non-English languages are supported.
8. Special considerations to support challenging, non-normative cases, such as English learners with disabilities and newcomers, refugees, and unaccompanied minor students who have had significant interruption in their formal education.

An effective system for English learners will need to pay attention to these components and place them in a framework of continuous improvement. The framework of continuous improvement and capacity development of the system is consistent with the state's approach to accountability, as well as with the Castañeda standards undergirding federal law.

Special Education

Margaret J. McLaughlin
University of Maryland

Introduction

Children and youth with disabilities are provided specific rights and protections under the 2004 Individuals with Disabilities Education Improvement Act (IDEA), Section 504 of the Rehabilitation Act, and the Americans with Disabilities Act (ADA). In addition, the 2015 amendments to Title I of the Elementary and Secondary Education Act (Every Student Succeeds Act. [ESSA]) contain explicit requirements for how students with disabilities are to be treated under that act. IDEA has two major programs: Part C provides funding for programs for infants up to 36 months and Part B, Section 611, covers children from ages 3–21, while Part B, Section 619, specifically focuses on children ages 3–5. This expert brief focuses primarily on Part B, Section 611, and on children with disabilities who are in Grades K–12.

The purpose of IDEA is to:

> *Ensure that all children with disabilities have available to them a free appropriate public education that emphasizes special education and related services designed to meet their unique needs and prepare them for further education, employment, and independent living, to ensure that the rights of children with disabilities and parents of such children are protected, to assist states, localities, educational service agencies, and Federal agencies to provide for the education of all children with disabilities*. (IDEA, 20 U.S.C. § 1400(d))

The central protections and entitlements of IDEA include *Zero Reject,* which guarantees that any student with a disability who meets the eligibility requirements is entitled to a publicly funded education—regardless of the severity or nature of the disability; *Nondiscriminatory Identification and Evaluation,* which is intended to ensure that only those children who meet the determination of "disability" are identified as eligible for services; *Free and Appropriate Public Education* (FAPE), which includes extensive procedural protections, including parent participation and consent and also substantive requirements, to ensure that each child receives, at no cost their parent or guardian, "specially designed instruction to meet the unique needs of (that) child with a disability" (IDEA, 20 U.S.C. § 1404(a)(17)); *Least Restrictive Environment,* which requires children with disabilities to be educated with their peers without disabilities to the maximum extent appropriate; and *Procedural Safeguards,* which are the essential civil rights protections that defend the interests of the child (Yell, Shriner & Katsiyannis, 2006).

States and local school districts have faced the challenge of implementing these requirements that are both complex and exist at the periphery of the K–12 education mission. Despite this, according to data from the National Center for Education Statistics (in 2014, Part B), IDEA funds accounted for a fifth of all federal monies distributed to states and were second only to Title I. Over the decades since passage of the federal Education of All Handicapped Children Act (PL 94-142), several persistent issues have propelled many of the federal policy changes as well as state and local implementation strategies. These issues also are the major special education cost drivers.

Which Children Are Eligible to Receive Special Education?

The first issue that has existed for as long as there have been special classes or special education relates to which children are eligible to receive those services. The "Child Find" requirement in IDEA is intended to make sure that a child who is suspected of having a disability is evaluated for eligibility to receive special education, but at the same time to protect against inappropriate or inaccurate identification of disability. The numbers of children served under IDEA and the characteristics or level of need of those children is a major factor in what special education "costs." Concerns about the resource implications associated with large numbers of children being identified as needing "special education" go back over a century itself (see Hendricks & MacMillan, 1989; Goldstein, Arkell, & Ashcroft, 1975).

Eligibility for services under IDEA is a two-part decision: First, the child must be determined to have a disability that fits within one of the "discrete" categories; second, that disability must be determined to have an adverse impact on the child's ability to benefit from education. For some disability categories, the first decision is easy; however, for other categories, this has historically been a problem. Imperfect or unmeasurable criteria associated with specific "disability" categories, such as "Specific Learning Disabilities," were part of the issue. So too were the use of tests and procedures, such as IQ testing, that were invalid for use with children who may have had other characteristics, such as insufficient English language proficiency, to determine a "disability." California in particular has extensive experience with issues related to eligibility determination, particularly *Nondiscriminatory Identification and Evaluation*. As a result of key court decisions as well as continued concern about disproportionate numbers of students of color in special education, schools are required to use multiple methods to evaluate a child and ensure that all tests and the procedure do not discriminate on the basis of race, culture, or native language. The extensive IDEA regulations that govern eligibility determination are known as protection in evaluation procedures, and specify all conditions and timelines for completing an initial evaluation as well as reevaluation to determine presence of a disability.

The fact that the IDEA statute and regulations are so prescriptive regarding eligibility determination clearly illustrates the soft boundary between what is considered "general" education and "special education." The push and pull of making sure a child has the opportunity to be evaluated and not "overidentifying" or identifying "the wrong" child exists because of a lack of capacity within general education to provide the necessary supports and instruction to struggling learners. The evaluation requirements apply to all 13 categories; however, the determination of a Specific Learning Disability (SLD) has been one of the most prominent given the numbers of school-age children in this category of disability. In addition, the longstanding problem of "disproportionality" in terms of the number of children of color (i.e., African American and Hispanic) in special education has resulted in changes to both IDEA and the regulations.

Specific Learning Disability. The 2004 IDEA reauthorization permits local school districts to use a child's response to evidence-based instruction (response to intervention or RTI) as part of the criteria for determining SLD. This was intended to address the problem of "wait to fail" that was an outcome of the "discrepancy" model in the prior definition, and to make IQ and other tests with limited or no instructional relevance obsolete. In addition, the provision recognized that many children who were being referred for evaluation did not have a disability but rather required more intensive and evidence-based instruction in general education. Nationally, SLD remains the most prevalent disability category (39% of all children ages 6–21 with individualized education programs [IEPs] were identified as having this disability in 2014) (U.S. Depart-

ment of Education [ED], Annual Report to Congress, 2016). However, nationally, the prevalence decreased about 9% between 2008 and 2014. Also, states vary in terms of increases or decreases over time. For example, California reported a 5% decrease in prevalence between 2006–07 and 2015–16. However, beginning in 2012–13, the number of students identified as having SLD has been inching up. Also, there has been a 31% increase in numbers of children identified as having "Other Health Impairment" (OHI) between 2008 and 2014. The OHI category can include students with attention deficit and hyperactivity disorder (ADHD). Do these changes reflect "real" changes in prevalence? Probably not. Rather, they further support the porosity between general and special education, and the role that "special education" plays as a default strategy for dealing with children's learning and behavior problems.

Disproportionality. The 1997 IDEA reauthorization was the first time that states were required to collect and analyze data to "determine if significant disproportionality based on race is occurring in the state or schools"; to revise "policies, procedures, and practices used in the identification and placement"; and to report annually on the number of districts identified as having significant disproportionality (34 CFR 300.647(a)). In 2004, the IDEA reauthorization expanded the requirement to include determination of "significant disproportionality," using one of three formulas, and to report on districts as well as policies and procedures that were found to be contributing to the disproportionality and corrections made. In addition, a provision was added that **permitted** local districts to use up to 15% of their Part B funds to provide services to "students in kindergarten through grade 12 (with a particular emphasis on students in kindergarten through grade three) who are not currently identified as needing special education or related services, but who need additional academic and behavioral support to succeed in a general education environment" (20 U.S.C. 1413(f)(2); 34 CFR 300.226(b)). The funds could be used to provide professional development, educational and behavioral evaluations, services and "scientifically based literacy instruction." Local districts that were determined to have significant disproportionality in identification and/or in the educational environments in which children with disabilities were being educated were **required** to allocate 15% of their Part B funds "to provide comprehensive coordinated early intervening services to serve children in the LEA [local education agency], particularly, but not exclusively, children in those groups that were significantly over identified … with respect to the identification of children as children with disabilities, or the placement in particular educational settings of these children (34 CFR 300.646(a), under 34 CFR 300.646(a) of this section." States report on the policies and procedures that have been changed to address the disproportionality and on the number of children served by Comprehensive Coordinated Early Intervening Services (CEIS).

New IDEA regulations finalized in 2016 established a standard approach that states must use in determining whether significant disproportionality based on race or ethnicity is occurring in the state and in its districts (using a risk ratio) (34 CFR 300.647(b)). In 2013, the Government Accountability Office (GAO) issued a report finding that, because states were using a variety of methodologies for examining their districts, few states take action to address significant disproportionality. In fact, as the GAO found, only 2 to 3% of all districts nationwide are identified as having "significant disproportionality," and some states' methodologies for identifying districts for disproportionality were constructed in such a way that the GAO found districts would likely never be identified. A 2016 report issued by the Office of Special Education and Rehabilitation Services (OSERS) used Office for Civil Rights data to calculate the "risk ratios" for 13 racial/ethnic categories for identification, environment, and discipline for all districts within each state. The data are reported in terms of numbers of districts with enrollments of 10 or more stu-

dents with a risk ratio for each category x identification, environment, or discipline that was two "median absolute deviations" above the national median over 3 years. The 2016 IDEA regulations clarify that states must address "significant disproportionality" in the incidence, duration, and type of disciplinary actions, including suspensions and expulsions of students with disabilities (as well as identification and educational placement). Finally, the regulations provide more flexibility in how districts may use Part B funds to intervene and prevent disproportionality (34 CFR 300.647(b)).

A recent analysis conducted by Morgan, Farkas, Hillemeier, and Maczuga (2016) used the Early Childhood Longitudinal Study-Kindergarten (ECLS-K) 1998 cohort data to examine disproportionate representation of children of color identified as having IEPs. The results indicate that socioeconomic status was a larger factor than a child's race or ethnicity. These findings have been supported by other studies (see Coutinho & Oswald, 1998; Education Elementary Longitudinal Study (SEELS); Malmgrem, McLaughlin, & Nolet, 2005) that have shown the interaction between race and poverty in the identification of children as having certain disabilities. Morgan et al. note that their findings should challenge the conventional thinking about disproportionality that have been based on *aggregate* disability rates with no adjustment for family income. They pose the question that the concern over disproportionate "over"-representation may in fact mean that some children who may legitimately have a disability are not being identified or provided services.

Free and Appropriate Public Education

The core entitlement of IDEA is to ensure that each child who is determined to meet the eligibility requirement receives, at no cost to their parent or guardian, "specially designed instruction to meet the unique needs of (that) child with a disability" (34 CFR 300.39). This is termed Free and Appropriate Public Education, or FAPE. What constitutes an appropriate education can be very ambiguous because the intent of the statute expects appropriate instruction to be tailored to each child's needs and strengths. The IEP is the legal expression of what a team, including parents or guardians, has determined to be appropriate for a child. The majority of disputes between parents and schools center on interpretations of "appropriate." A child's level of need can and should influence interpretations of "appropriate"; however, my experience suggests that other factors, including availability of resources, have an equal role in determining what goes into an IEP.

Legal interpretations of "appropriate." Until May 2017, the prevailing legal interpretation of "FAPE" was the 1982 Rowley decision, which established that a state met the requirement to provide FAPE by providing "personalized instruction with sufficient support services to permit the child to benefit educationally from that instruction…the instruction must meet the State's educational standards, must approximate the grade levels used in the State's regular education and must comport with the child's IEP" (Board of Educ. v. Rowley, 458 U.S. 176 (1982). In addition, the IEP must be formulated in accordance with the requirements of the law and "should be reasonably calculated to enable the child to achieve passing marks and advance from grade to grade."

Despite the implied intent of creating ambitious educational goals and educational outcomes, it is probably reasonable to say that most of the efforts surrounding IEP development have focused on procedural compliance, not "educational benefit." Furthermore, the level or degree of benefit a child is receiving from the IEP is at the crux of most disputes and the tension

between standards-based IEPs and the concept of "adequacy" and "appropriate." The Endrew F. decision concerned what amount of benefit satisfies the "appropriate" standard. The question presented to the Supreme Court was whether the "educational benefit" provided by a school district must be "merely more than *de minimis*" or "*meaningful*" to satisfy the requirements for FAPE.

Writing for the majority (8-0), Chief Justice Roberts said, a "child's "educational program must be appropriately ambitious in light of his circumstances" and that "every child should have the chance to meet challenging objectives."

"When all is said and done, a student offered an educational program providing 'merely more than de minimis' progress from year to year can hardly be said to have been offered an education at all," Roberts wrote. "For children with disabilities, receiving instruction that aims so low would be tantamount to 'sitting idly . . . awaiting the time when they were old enough to 'drop out (Chief Justice John G. Roberts Jr., 2017).' "

The key change, according to Yell and Bateman (2017), will be to the IEP goals that will need to be crafted to meet the test of "*appropriately ambitious in light of [the student's] circumstances."* Yell and Bateman summarized the implications of Endrew F. as a clarification of the Rowley decision. The Endrew F. decision maintains the two-part test for determining "appropriate": (1) Did the district comply with the procedures for developing the IEP? and (2) Is the IEP reasonably calculated to enable a child to make appropriate progress in light of a student's circumstance? The decision settled the issue with respect to "educational benefit" in that it must be more than "*de minimus*." Yell and Bateman state that this higher standard will have implications for states that were in a federal circuit court that had no standard or a *"de minimus*" standard.

FAPE and the Elementary and Secondary Education Act (ESEA). Educators need no reminder of how the past two decades of federal K–12 education policies, as defined through ESEA, have altered the education of students with disabilities in U.S. schools. The focus on universal standards, assessments, and accountability in ESEA has impacted how IEPs are developed as well as how and where special education services and supports are provided.

The initial changes were made to IDEA in 1997 and began the alignment of the standards-based reforms that had been incorporated into ESEA. Among the changes were the requirement that students with disabilities access the general education curriculum, participate in state and local mandated assessments with necessary accommodations, and have results of those assessments publicly reported. The 2000 ESEA reauthorization (No Child Left Behind Act [NCLB]) resulted in significant changes to special education. A key provision in NCLB was the requirement that schools be held accountable for the performance of all of their students, as well as for the performance of specific subgroups, including students who receive special education services. The idea that schools would have public accountability for the aggregate achievement of students with IEPs on state standards was unprecedented, and created tensions and divisions within the field over how the concept of "appropriate" could be achieved through universal standards. One strategy was the creation of "standards-based IEPs."

Standards-based IEPs. Since that time, the IEP provisions have been expanded to include more reference and alignment to state standards and student outcomes based on those standards. Among the very important provisions in the 2004 IDEA is the requirement that the content of the child's IEP specify how "the child (will be) involved in and progress in the general education curriculum" [§614(b)(2)(A)(ii)], "how the child's disability affects the child's involvement and

progress in the general education curriculum" [§614 (d)(1)(A)(i)(I)(aa)], and a statement of the program modifications or supports for school personnel that will be provided for the child "to be involved in and make progress in the general education curriculum..." [§614 (d)(1)(A)(i)(IV)(bb)]. In a November 2015 *Dear Colleague Letter*, ED provided additional guidance stating that "the same curriculum as for nondisabled children" to be the curriculum that is based on a state's academic content standards for the grade in which a child is enrolled. This interpretation, which we think is the most appropriate reading of the applicable regulatory language, will help to ensure that an IEP for a child with a disability, regardless of the nature or severity of the disability, is designed to give the child access to the general education curriculum based on a state's academic content standards for the grade in which the child is enrolled, and includes instruction and supports that will prepare the child for success in college and career. (https://www2.ed.gov/policy/speced/guid/idea/memosdcltrs/guidance-on-fape-11-17-2015.pdf).

ESSA. According to Council of Chief State School Officers, some ESSA requirements for states that are or may be "new" include:

- Universal design for learning (UDL). All assessments must be developed, to the extent practicable, using principles of UDL (Section 1111(b)(2)(B)(xiii) of ESEA, as amended by ESSA).
- Alternate achievement standards must (1) be aligned with the challenging state academic content standards); (2) promote access to the general education curriculum, consistent with IDEA; (3) reflect professional judgment as to the highest possible standards achievable by the affected student; (4) be designated in the IEP developed for each such student as the academic achievement standards that will be used for the student; and (5) be aligned to ensure that a student who meets the alternate academic achievement standards is on track to pursue postsecondary education or employment (Section 1111(b)(1)(E) of ESEA, as amended by ESSA).
- Goals and measures of interim progress. States must establish ambitious long-term goals with measures of interim progress for all students and separately for each subgroup, including students with disabilities. Long-term goals, including measurements of interim progress toward meeting such goals, must be established for, at a minimum, improved:
    - Academic achievement (as measured by proficiency on the annual assessments)
    - High school graduation rates. The term set for such goals is the same multiyear length of time for all students and for each subgroup of students.
    - For subgroups who are behind on the measures of academic achievement and high school graduation rates, the state must take into account the improvement necessary on such measures to make significant progress in closing statewide proficiency and graduation rate gaps. The proposed regulations under ESSA would (1) clarify that student proficiency goals and measures must be based on grade-level proficiency, and that a state must use the same definition of grade-level proficiency for all students; and (2) specify that "taking into account" the improvement necessary for lower performing students to make significant progress means setting interim measures that require greater rates of improvement for those subgroups.
- Allow states to include in their adjusted cohort graduation rate students awarded *a state-defined alternate diploma*. Students with the most significant cognitive disabilities in the cohort, assessed using the alternate assessment aligned to alternate academic achievement

standards, and awarded a state-defined alternate diploma, can be counted in a state's adjusted cohort graduation rate, if the state-defined alternate diploma is (a) standards-based, (b) aligned with the state requirements for the regular high school diploma, and (c) obtained within the time period for which the state ensures the availability of FAPE.

Least Restrictive Environment (LRE)

The law requires that the IEP first consider what is "appropriate" for an individual child and then requires that states and districts have in place procedures assuring that, "to the maximum extent appropriate, children with disabilities, including children in public or private institutions or other care facilities, are educated with children who are not disabled, and that special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily." The states report LRE based on the proportion of the school day that children with disabilities are educated in general education classrooms, then the percentage of children educated in special classes, special schools, and other separate placements. More than half of all children with IEPs are receiving special education in general education classrooms 80% or more of a school day.[5]

This is the preferred setting, and the IEP team must begin its consideration of placement starting with the general education age-appropriate classroom. Decisions to move away from the general education classroom "occurs only when the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily."

Four circuit court decisions have defined the following considerations for determining LRE for a given child:

- The educational benefits available to the disabled student in a traditional classroom, supplemented with appropriate aids and services, in comparison with the educational benefits to the disabled student from a special education classroom.
- The nonacademic benefits to the disabled student from interacting with nondisabled students.
- The degree of disruption of the education of other students, resulting in the inability to meet the unique needs of the disabled student.
- School districts **may not** make placements based solely on factors such as the following:
  - Category of disability;
  - Severity of disability;
  - Configuration of delivery system;
  - Availability of educational or related services;
  - Availability of space; or
  - Administrative convenience.

Despite the best efforts to define and maintain the maximum degree of inclusion in general education, decisions about location of services are most often dictated by availability of re-

[5] Available at https://nces.ed.gov/programs/digest/d15/tables/dt15_204.60.asp?current=yes

sources and administrative structures, including how special education is defined and situated within a school or school system. For instance, by far, most of the children who are receiving special education in general education classrooms for most of the school day are classified as SLD or OHI. Children with more significant intellectual and other developmental disabilities still receive the majority of their education in separate classes, schools, or other specialized settings. Students identified as having behavior and emotional problems also are far less likely to be educated in general education classrooms, and African American males are far more likely to be in special classes and schools (and also to be identified as having a behavioral/emotional disability).

Separate settings cost more (Chambers, Shkolnik & Perez, 2003), and districts attempt to decrease special education costs by reducing the numbers of children placed in special schools, including nonpublic schools. In my experience, LRE is related to district-level demographics and conditions. Schools that have large concentrations of poor children, although not necessarily identifying more children for special education, tend to (1) have more children with IEPs whose needs are greater, and (2) have weaker general education programs due to such things as less experienced teachers, larger classes, and higher caseloads for support personnel, such as speech and language specialists, behavioral specialists, psychologists, and social workers.

Small and/or rural districts struggle to provide more specialized services that are typically required for low-incidence students (e.g., occupational therapy, behavior analysis) because there are fewer of the students and also fewer available specialists.

Although issues related to disproportionality, inclusion, and "appropriate" are longstanding and have resulted in new or greater regulation, there are some issues specific to special education that are emerging and deserve recognition due to the possible relationship to costs. The first of these is the expansion of the use of multi-tiered systems of support (MTSS).

Multi-tiered Systems of Support

Special education research and policy has focused on two major goals over the past decades: (1) ***prevention*** of academic and behavioral problems that result in identification for special education, and (2) ***attenuating the effects*** of child-specific developmental/cognitive conditions to reduce the level of service need. Research is clear that special education is most effective in prevention and attenuating when intervention occurs early, is tailored to specific child characteristics, and is intensive enough to achieve results. Sound general education is necessary but insufficient, and the notion of tiered intervention reflects the understanding that the line between "general" and "special" education is ambiguous and that preventing and moderating the effects of learning problems begins in general education.

The concept of tiered intervention, which is the model for "response to intervention," or RTI, and positive behavioral interventions and supports (PBIS), is included within a broader umbrella term of MTSS. Tiered intervention is not a new concept in special education, but became part of the vocabulary in public education as a result of the 2004 reauthorization of IDEA that specified RTI as an alternative approach to identifying students with SLD. It also was listed as one of the interventions that schools deemed in need of improvement under NCLB should consider. RTI focused on the identification of individual students with disabilities due to learning or behavior problems, and PBIS focused on reducing disciplinary events due to behavior or emotional problems. MTSS is defined as a way to change a school so that it can support any child with learning or behavior problems through systematically delivering a range of interventions

based on child need, and consistently monitoring children's progress to make sure they are moving forward. Fuchs and Deshler (2007) note that MTSS is a new way to think about both identification and early intervention assistance for all struggling or "academic unresponsive children" (p. 131). MTSS can "prevent" or make irrelevant the need to "classify" a child in order to receive specialized or more intensive interventions.

The basic MTSS model consists of three tiers: Tier 1 is strong, scientifically based core instruction; Tier 2 is targeted intervention; and Tier 3 is comprised of intensive interventions. The real challenge in MTSS is that it requires that teachers, administrators, district personnel, and student support specialists change the way that they have traditionally worked as isolated or separate, and instead learn how to come together to create a more collaborative and cohesive culture. Delaware is one of a number of states that have endorsed MTSS, but implementation requires a strong district commitment.

Comprehensive Coordinated Early Intervening Services. As noted earlier, the 2004 IDEA reauthorization established CCEIS, which permitted local districts to use up to 15% of their Part B funds to provide services to "students in kindergarten through grade 12 (with a particular emphasis on students in kindergarten through grade three) who are not currently identified as needing special education or related services, but who need additional academic and behavioral support to succeed in a general education environment." The intent was that the funds be used to support greater collaboration between general and special education, and could be used, in combination with Title I funds, to support tiered intervention models.

The new regulations finalized in 2016 that established a standard approach that states must use in determining whether significant disproportionality based on race or ethnicity is occurring in the state and in its districts also provided more flexibility in the use of Part B funds to intervene and prevent disproportionality. Specifically, the changes clarify how the Part B funds can be used voluntarily versus the use of funds in districts found to have significant disproportionality. Table 1 provides a comparison between CCEIS and CEIS.

Table 1. Comparison of Mandatory Comprehensive Coordinated Early Intervening Services and Voluntary Coordinated Early Intervening Services

Element	Coordinated Early Intervening Services	Comprehensive Coordinated Early Intervening Services
Abbreviation	CEIS	CCEIS
Regulation	34 CFR §300.226	34 CFR §300.646
Type	Voluntary – LEAs can choose to use a portion of their IDEA Part B funds for services to a defined group of at risk students.	Mandatory – LEAs identified as having significant disproportionality in identification, placement, and/or disciplinary removals must use IDEA Part B funds for CCEIS.
Grade level/ ages served	Kindergarten through grade 12	Age 3 through grade 12
Groups served	Only children who are not currently identified as needing special education or related services.	Children who are not currently identified as needing special education or related services, but who need additional academic and behavioral support to succeed in a general education environment. Children currently identified as needing special education or related services (funds can be used primarily, but not exclusively, for this group).
Funds	Up to 15 percent of IDEA Part B funds (611 and 619)	Exactly 15 percent of Part B funds (611 and 619)
Permitted activities	Professional development for teachers and other school staff to enable such personnel to deliver scientifically based academic and behavioral interventions, including scientifically based literacy instruction and, where appropriate, instruction on the use of adaptive and instructional software. Educational and behavioral evaluations, services, and supports, including scientifically based literacy instruction.	Professional development and educational and behavioral evaluations, services, and supports. The activities must address factors and policy, practice, or procedure contributing to significant disproportionality.
Reporting requirements	An LEA is required to report to the state and the state is required to report to the U.S. Department of Education the following: the number of children served under this section who received early intervening services; and the number of children served under this section who received early intervening services and subsequently received special education and related services under Part B of IDEA during the preceding 2-year period.	An LEA is required to publicly report on the revision of policies, practices, and procedures. Additional reporting requirements to be determined by OSEP at a future date.

Source: IDEA Data Center, https://ideadata.org/sites/default/files/media/documents/2017-09/idc_ceis_chart.pdf

Evidence-Based Interventions

As part of the states' ESSA plans are how the states will identify their "lowest performing" (5%) public schools that receive Title I funding, including public high schools that fail to graduate one third or more of their students and other categories to be determined by the state. In those identified schools, the district must develop "a comprehensive support and improvement plan that is informed by the indicators and long-term goals of the state's accountability system, includes evidence-based interventions, is responsive to a school-level needs assessment, and identifies resource inequities that will be addressed.

ESSA defines "evidence-based" as an activity, strategy, or intervention that demonstrates a statistically significant effect on improving student outcomes (or other relevant outcomes) based on strong, moderate, or promising evidence from at least one well-designed and well-implemented experimental or quasi-experimental study, or a rationale based on high-quality research findings or a positive evaluation that suggests the intervention is likely to improve outcomes.[6] States have flexibility in allowing schools and districts to determine which evidence-based interventions are most likely to work in which contexts and with which students.

According to expectations set forth in IDEA, an individual child's IEP should reflect the use of evidence-based practices or interventions that are responsive to the child's IEP goals. In defining such practices, a 2005 article in *Exceptional Children* (Odom et al., 2005) specified the methodologies and expectations for interventions considered to be evidence based. Recently, a committee of special education researchers under the direction of James McClesky compiled a review of "high-leverage" practices in special education. The 2017 *High-Leverage Practices in Special Education* provides the categories of practices and specific interventions within each category that have a sufficient evidentiary base to be considered evidence based.[7]

State Compliance and Accountability Under IDEA

The original accountability model for making sure that states were providing sufficient oversight and resources to ensure that districts were meeting the requirements of the act relied on demonstrations of procedural compliance with the law. These included demonstrating that children were being identified as having a disability and provided services under IDEA (e.g., reports on child counts, timelines for evaluations). The number of indicators of compliance that states were required to report grew over time and were increasingly burdensome to states; also, advocates did not see a link between the indicators and FAPE.

The 2004 IDEA amendments and the 2006 regulations refocused the monitoring of state compliance that the law requires of ED's Office of Special Education Programs (OSEP). The regulations required that states develop State Performance Plans (SPPs) that were used to evaluate states' implementation of IDEA. The SPPs for Part B include baseline data for 20 indicators, such as graduation rate, dropout rate, participation in and performance on assessments, meeting evaluation timelines, and ensuring that complaints and hearings are resolved within required timelines.[8]

[6] See ESSA (2016), available at https://www2.ed.gov/policy/elsec/leg/essa/guidanceuseseinvestment.pdf.
[7] Available at http://ceedar.education.ufl.edu/wp-content/uploads/2017/07/CEC-HLP-Web.pdf.
[8] See U.S. Department of Education (2010) available at https://education.gov/fund/data/report/idea/partbspap/prevideaetermfs/2010ideafactsheet-determinations6-1-10.pdf.

States also were required to establish measurable improvement goals and "rigorous" improvement targets and activities for each of the indicators (Yell, 2006, p. 468). States were required to report annually on the extent to which their local districts met or exceeded the targets through annual performance reports, or APRs, which were reviewed by ED. However, a determination of a state's compliance with IDEA did not include consideration of progress made on student performance or educational outcomes.

The 2004 IDEA also set out the designations of "Meets Requirements" (MR), "Needs Assistance-1 Year (NA-1), "Needs Assistance-2 Years" (NA-2), and "Needs Intervention," which denotes three or more consecutive years of not meeting requirements. The 2004 amendments laid out specific enforcement requirements for ED based on the number of years a state is found to "Need Assistance." Between 2004 and 2013, most states were designated as "MR" for any given year, although states moved between MR, NA-1, and NA-2 with no consistent pattern, either by region, state size, or other characteristic (https://ed.gov/fund/data/report/idea/partbspap/index.html#nm).

In 2014, OSEP initiated a new compliance model referred to as "Results Driven Accountability" (RDA) (https://www2.ed.gov/about/offices/list/osers/osep/rda/index.html). Under this model, state designations are calculated using a scoring system for "compliance" and student results (e.g., student achievement, performance on the National Assessment of Educational Progress [NAEP], graduation rate). On each indicator (two of the 20 indicators were eliminated), a state is scored as "0," "1," or "2" based on established criteria, and states receive a compliance and results score, which are then transformed into one of the designations. ED uses the determination to differentiate the monitoring and support it provides to all states, but in particular low-performing states.

According to the extensive documentation, OSEP uses "the totality of available information about a state, including a variety of public data sources, information from specific monitoring, and "Special Conditions" on a state's Part B grant award," to score a state. (*How the Department Made Determinations under Section 616(d) of the Individuals with Disabilities Education Act in 2015: Part B,* U.S. Department of Education: https://www2.ed.gov/fund/data/report/idea/partbspap/2015/2015-part-b-how-determinations-made.pdf).

A key element of the new RDA is the requirement that each state develop a comprehensive multiyear State Systemic Improvement Plan focused on improving results for students with disabilities.

Summary

The rights and protections for students with disabilities are stated in the Individuals with Disabilities Education Improvement Act (IDEA), Section 504 of the Rehabilitation Act, and the Americans with Disabilities Act (ADA). The requirements of how students with disabilities are to be treated are stated in the 2015 amendments to Title I of the Elementary and Secondary Education Act (Every Student Succeeds Act. [ESSA]). States and local school districts have faced the challenge of implementing these complex requirements in spite of demands of the overall general education system. Despite these complexities, according to 2014 data from the National Center for Education Statistics Part B IDEA funds accounted for one-fifth of all federal monies distributed to states and is the second largest federal program (the first being Title I).

In 2014, OSEP initiated the RDA, a new compliance model, where each state is required to develop a comprehensive multiyear State Systemic Improvement Plan focused on improving results for students with disabilities. Moreover, state designations are calculated using a scoring system for "compliance" and student results that requires that each state develop a comprehensive multiyear State Systemic Improvement Plan focused on improving results for students with disabilities.

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Effective School Leadership Supports

Anthony P. Cavanna, Ed.D., and Jordan D. Simons, M.S.Ed.,
Fordham University Graduate School of Education

Executive Summary

The purpose of this paper is to assist educators, policymakers, and other school community members in Delaware in exploring some of the key components of successful schools serving diverse student populations. Although the strategies provided are based on research and the experiences of veteran administrators, school board members, and teachers, it is important that each strategy is evaluated against the local school and school district context prior to implementation, and that ongoing evaluation is used to gauge its effectiveness. Described below are the key, identified themes of school success.

Leadership for District and School Success

Effective leadership is essential at the district and school levels to promote school success and student achievement. Characteristics of effective leaders include (1) a recognition that shared accountability requires shared resources; (2) a reliance on data-driven decision making to guide student instruction; (3) a dynamic ability to engage all stakeholders in the education process; (4) an ability to establish and sustain a professional learning community (PLC) that is sensitive to district, school, teacher, and student needs; (5) skills and experience to deal with the often volatile political and financial environments; (6) a realization that race and poverty have a profound impact on the school experience for many students; (7) an understanding that student mastery and competence are more indicative of student ability than accountability measures; and (8) a persistent focus on the instructional core and what is happening in every classroom in the district.

Change Versus Progress

Changing school structures, adding programs, or allocating additional resources does not automatically result in improved student achievement. Instead, change must be well articulated, focused, part of a theory of action, and sustained over time to have positive effects on student outcomes.

Support From a Student-Focused School District

Having a clearly defined roadmap for change is critical. In developing it, one must be aware of the local context and able to prioritize needs addressing student, as well as adult, learning. In addition, a clearly articulated vision and mission that is inclusive of all students will enable everyone to work toward shared goals. It is only together that the mission and vision can be realized. Last, high teacher and student expectations are vital for student success. Professional development promotes teacher quality, while clear and rigorous standards, use of multiple assessments, strength-based teaching strategies, and accelerated learning opportunities are among some of the effective strategies to raise student standards.

Policy and Resources

Although providing ample resources to districts and schools is vital, the need to appropriately allocate these resources also is paramount. Formulas that are sensitive to individual student need, rather than simple per-student allocation, enable all students to have their needs met. Student data should drive this process, while policy should solidify it. It also is important to note that mon-

ey alone cannot raise student achievement. Instead, appropriate allocation, along with a comprehensive plan that addresses school leadership, teacher professional development, and student learning, are required.

School, Community, Climate, and Connectedness

The success of individual students and school communities is positively affected when students feel connected to and valued within their schools. A safe and orderly school environment creates the foundation for student engagement in learning activities. Related to providing engaging instruction—particularly at the intermediate and secondary levels—is the need for a personalized learning environment wherein each student's individual progress is noted and encouraged, and related to competencies and mastery rather than scores on accountability assessments. In addition, emphasizing prevention can mitigate some of the costly intervention strategies needed when students' needs are left unmet over a long period. Effective schools build capacity, develop relationships concerning effective learning, and monitor progress toward meeting standards. Research on best practices indicates that the most successful school reform strategies are those that emerge through a process involving the entire school community, where various stakeholders come together to design a strategy that meets the unique situational needs of the district. Moreover, the success or failure of any whole-systemic reform strategy depends on the strength of its implementation; that is, whether it creates tangible and long-lasting improvements throughout the school, the school system, or both.

History has taught us that reform happens at the school level, but district supports must be in place to provide and steer resources, professional development, and support and encouragement (a top-down/bottom-up approach). Policymakers, state education agencies, and district administrators need to set criteria, provide support, and allow schools to meet expectations in self-determined ways because educators closest to students know what students need. At the same time, districts need to be ready to intervene in failing schools when necessary.

The most important lesson learned from many school improvement efforts is that raising student achievement is challenging work that takes extensive time and energy. It also requires that we assess our strengths and weakness, admit what we do not know, design focused learning experiences for both students and educators, and focus resources on activities that improve student learning. This requires that school leaders, district administrators, and policymakers develop a sustainable theory of action and make difficult decisions about how to assess needs and respond accordingly, as well as ensuring that adequate resources are available to implement the necessary strategies.

Expert Brief

During my tenure as superintendent of urban and suburban school districts, I was keenly aware that one of my major responsibilities, both legally and morally, was to recommend to the board of education that resources be allocated adequately, equitably, and effectively to support the education of all students in my care. I soon discovered that this was a daunting task, given the reality of the politics surrounding the education process and the inevitable competition for available resources.

Prior to my tenure in that district, most, if not all, decisions about the allocation of resources were based on the needs, opinions, and desires of a small number of adults who had influence over the board of education, politicians, and political processes at the state, local, district, and

school levels. Thus, it became my task, that school year, to work to change the thinking of stakeholders to focus on the needs of children in their classrooms.

My practice had been to develop a collaborative process with the board of education, community members, school administrators and staff, parents, and state, regional, and local community and business leaders to develop and implement a *theory of action* for school improvement that focused on the needs and welfare of each student. The *theory of action* included a central question pertaining to the current or anticipated revenues/resources: How does that decision support the instructional core in the classroom and meet our goal of success for all students? Many difficult and controversial decisions were made, which required the reallocation of resources that were being used ineffectively or unproductively. All decisions were key determiners of how teachers and programs supported the unique needs of each student.

Two things consistently occurred each time after the articulated reprioritization of the *theory of action*. First, resources appropriately targeted students' needs through the establishment of priorities and structures that supported improved teacher practice. Some programs and positions were eliminated or resources reallocated to establish sound instructional practices based on the realities of student needs. Second, students made significant achievement gains in literacy and mathematics, and this progress continued for years following the effort to more effectively channel available resources and make needed adjustments, while seeking additional needed resources.

During my years as superintendent of schools in these districts, I learned that administrators have an enormous responsibility to not only manage resources effectively, but also to ensure that resources are allocated to provide adequate student support and, most importantly, to improve teacher practice. In addition, my experience taught me that although my primary focus was to focus on student learning and welfare, my role was becoming increasing complex and ambiguous given the changing nature of national, state, and local policies regarding funding and accountability. Dealing with the complexity of creating more effective schools and school districts taught me that I needed to develop the skills and understanding to be an effective school leader. I needed to consistently remind the school community members of our mission and purpose, focus our resources on achieving those goals, and call on expertise in the community to support those efforts.

It is important to keep in mind that race and poverty have a profound impact on the school experience for many of our students. Inequities and inequalities are magnified by conditions outside of the school, such as poverty, health, neighborhood, safety, and parental support. It is every leader's challenge and responsibility to provide the leadership to ensure that ***every student*** *in every classroom is engaged in learning opportunities and instruction that will allow him or her to* ***meet or exceed high standards***, ***graduate***, *and* ***be college or workforce ready***.

Background

It is the goal of this paper to assist educators, policymakers, and other school community members in Delaware in exploring some of the key components of successful schools serving diverse student populations. Supported by research on school reform, the components discussed herein—if implemented effectively—are likely to move schools toward the objectives set forth by the Delaware Legislature and State Board of Education. Many educators have seen student performance gains and a narrowing in the achievement gap following implementation of some combination of the components of successful schools considered in this paper.

First, a discussion of instructional leadership explores how dynamic instructional leaders are less concerned with day-to-day management matters and more focused on what is going on in classrooms. Current research and evidence from successful schools and school districts suggest that effective school and district leadership is fundamental to student success because strong leaders ensure that teachers and other staff receive meaningful and relevant professional development, cultivate PLCs, use data rather than instinct to make decisions, and ultimately work to guarantee that every student receives high-quality instruction.

Today, school principals and other leaders face mounting accountability demands in a climate of urgency; therefore, some may end up simply replacing structures and strategies with others, instead of planning carefully to accomplish goals and ensure actual progress. Following a section on the importance of effecting sustainable results instead of quick-fix solutions, this paper recommends research-based strategies for district-level support of school improvement strategies. When districts articulate and implement a *theory of action* to guide school reform, everyone is able to understand and commit to his or her role in the process. The alignment of state, district, and school priorities and strategies is more likely to raise student achievement than a disjointed, piecemeal approach. Furthermore, it has been shown that schools can provide better opportunities for student and adult learning when their efforts are supported by district administrators and school policymakers.

Successful schools and districts routinely collect and analyze student data to make important decisions about policies, resource allocation, and financial sustainability. In addition, they make teacher professional development and training a priority, along with the recruitment and training of potential individuals to join the certified teaching force. In many states, there exists a tremendous need to recruit and train both teachers and instructional assistants to meet the needs of students who attend Delaware schools to offset a shortage of certified teachers. Also, the needs and benefits are clear in research about the benefits of preschool for all students, especially those from low-income families and homes where English is not the first language. Last, this paper recommends some best practices for ensuring a safe and positive learning environment in schools, wherein students are engaged with the material and invested in their own education. Successful schools have student supports focused on prevention rather than intervention for all students, including those placed at risk, as well as partnerships with parents, businesses, and the larger community.

Leadership for District and School Success

It Starts with Mindset—Erasing Deficit Thinking

As leaders, we constantly hear these excuses for underperformance: "The students cannot perform because...," "The community will not agree to it...," or "Teachers cannot implement this initiative...." Many of the rationales for these statements stem from interpreted notions of socioeconomic status, "geographical context and perceptions of a certain neighborhood or community, or other perceived disadvantage affecting students, educators, or the community at large" (Sanfelippo & Sinanis, 2016). It is incumbent upon school leaders then to eradicate this type of deficit thinking or "soft bigotry of low expectations" by developing strength-based relationships. Leaders can do this by looking for and emphasizing the strengths of students and teachers, indicating and modeling those strengths, encouraging educators to learn something difficult, giving students and teachers access to diverse learning opportunities, and celebrating the strengths at their schools (Sanfelippo & Sinanis, 2016). By emphasizing these elements, all education stakehold-

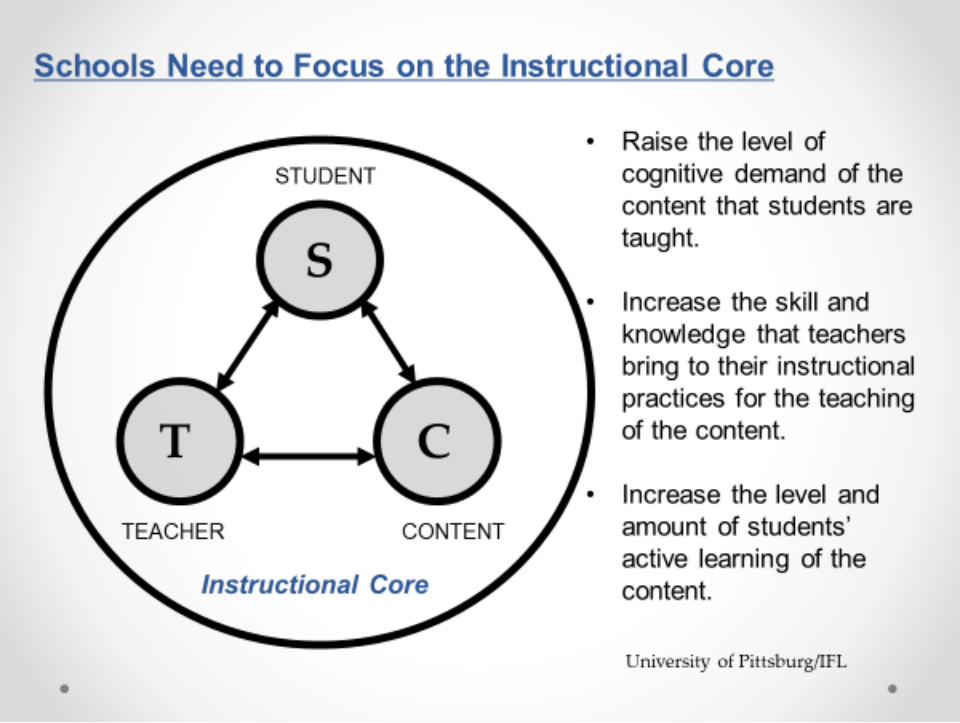
ers (students, teachers, administrators, board members, and parents) will feel empowered and motivated to grow professionally, thus building capacity of the school and district.

Clear School Mission and Goals

Research on the characteristics of effective schools and testimony from veteran educators across the nation make evident the importance of school leadership as the catalyst for school success and the engine that drives student achievement gains (Marzano, Waters, & McNulty, 2005). Research and anecdotal evidence indicate that school reform aimed at raising student achievement to meet state standards will produce better and more lasting results if a principal sets a clear mission and develops goals, establishes the urgency of implementing this mission, supports and develops staff, and builds a solid organization (Leithwood, Seashore, Anderson, & Wahlstrom, 2004; Blythe & Gardner, 1990). Often, effective principals provide opportunities for teacher leaders to emerge by distributing responsibility for student learning and sharing a commitment to the mission of raising student achievement.

If schools and school districts are to achieve the quality of teaching and learning that students need for future success, and if school leaders are to meet their goals, then school leaders must focus on the instructional core of what is happening in schools (see Figure 1). Schools have to raise the level of cognitive demand of the content, increase the skills and knowledge that teachers bring to their practice, and increase the amount and level of students' active learning. This is the major challenge that faces our schools and their leadership in the effort to increase student achievement and meet the needs of each student.

Figure 1. Focus on the Instructional Core



Following a coherent *theory of action* at the district level, successful schools have a school vision and mission that are articulated and widely displayed in the school. Everyone in the school community has an obligation to invest in where the school is going and how it is getting there. The school vision must be inclusive and committed to all students, including special education students and English language learners (ELLs).

Successful schools have a mission that includes engaging instruction and high expectations for all students. These schools offer many opportunities for shared or distributed leadership, including identifying and nurturing teacher leaders. In many cases, these schools use an instructional area, such as literacy or a cross-disciplinary theme, to focus teaching and professional development activities on student achievement in those identified subject areas or themes. In many of these schools, where a focused curriculum is matched to the state standards and where themes are tools to improve instruction, the infusion of additional resources is not always required, but resources may need to be reallocated.

The Leadership Effect

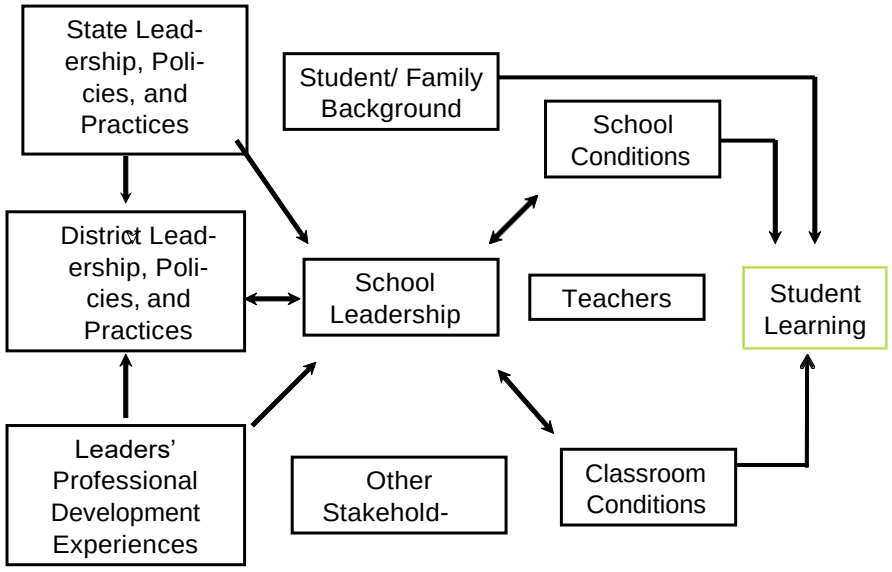
In 2010, the Wallace Foundation published *Investigating the Links to Improved Student Achievement: A Study of Collective Leadership*. Leadership is widely believed to be a force for school effectiveness. This study justified this belief through a 6-year research study that examined the multiple levels at which leadership can be exercised in education—from the classroom to the state house. The study identified factors that have been shown to have an impact on student achievement (see Figure 2). The research recognized and focused on many identified behaviors that are thought to be elements of being an effective leader, and pointed to the conditions that encourage or discourage these productive actions, such as the following:

- Principal-teacher relationships focus on student learning and the instructional core.
- District leaders' interactions with principals encompass a theory of action and a focus on instruction.
- Principals are most effective when they see themselves as working collaboratively towards clear, common goals with district personnel, other principals, and teachers.
- District support for shared leadership at the school level enhances the sense of efficacy among principals.
- When principals and teachers share leadership, teachers' working relationships with one another are stronger and student achievement is higher.
- District support for shared leadership fosters the development of professional communities.
- When teachers feel attached to a professional community, they are more likely to use instructional practices that are linked to improved student learning.
- Higher performing schools generally ask for more input and engagement from a wider variety of stakeholders, and provide more opportunities for influence by teacher teams, parents, and students.
- Principals and district leaders continue to exercise more influence than others in all schools; they do not lose influence as others gain it.
- Expectations and accountability measures were identified as a major focus for leadership activity.

- In districts where levels of student learning are high, for example, district leaders are more likely to emphasize goals and initiatives that reach beyond minimum state expectations for student performance, while they continue to use state policy as a platform from which to challenge others to reach higher ground.
- In schools that are doing well, teachers and principals pay attention to multiple measures of student success.
- State initiatives and policies matter.

Finally, we found that, overall, state initiatives matter. States, for all the variability in their approaches to policy making, are firmly focused on standards and accountability. Most make use of state mandates, and pay more limited attention to support and professional development for leaders. The translation of legislative and gubernatorial initiatives into support for schools falls to the state agencies, which are struggling to realize a significant change in their roles, shaped by the standards and accountability movement (Louis, Leithwood, & Anderson, 2011).

Figure 2. Leadership Influences on Student Learning



Source: Louis, Leithwood, & Anderson, 2011

As the Wallace Foundation's Learning from Leadership project reminds us:

> School leadership, from formal and informal sources, helps to shape school conditions (including, for example, goals, culture, and structures) and classroom conditions (including the content of instruction, the size of classrooms, and the pedagogy used by teachers). Many factors within and outside schools and classrooms help to shape teachers' sense of professional community. School and classroom conditions, teachers' professional communities, and student/family background conditions are directly responsible for the learning of students.

School District Leadership

American Institutes for Research (Dailey et al., 2005) conducted a review of the research on school district reform and reinforced a number of earlier findings while emphasizing the need for a systematic *theory of action* to guide the course of those involved in the change process. The

theory of action that a school district follows must align with the beliefs and values of the individuals who are involved in the school improvement process to be successful and, more importantly, sustained. Another lesson learned from the past is that genuine change in schools requires time and a sincere commitment of the people involved in the process, coupled with the sense of urgency that the reforms need to be accomplished now.

Accountability

Again, meeting the demands of multiple accountability systems requires strong leadership at the school and district levels. Principals and other administrators and supervisors are not always prepared to be effective instructional leaders in today's age of high-stakes testing and increasingly diverse student populations (Bouchard, Cervone, Hayden, Riggins-Newby, & Zarlengo, 2002). Their educational background and training may not have taught them to analyze and synthesize the complicated issues with which they are presented, and they may not be experts in literacy or other subject areas that they supervise. However, changes in the past decade to professional preparation programs for principals "suggest that there is a movement away from managerial, authoritarian, top down leadership styles" and a "transition towards collegial and empowering forms of leadership [that] has been catalyzed by a reconceptualization of the principal's role" (Behar-Horenstein, 1995, p. 18). This philosophical shift is present in the leadership styles of many successful superintendents of schools and principals who promote distributed leadership and shared decision making as improvement strategies (Spillane, Halverson, & Diamond, 2001; Burney, 2004). Furthermore, many educators who have seen student achievement improve dramatically in their districts will confirm that reaching out for help is a courageous first step toward bringing about genuine, noticeable change. Crucial to improving instruction and achievement within a school is admitting what one knows and what one needs to learn, and then launching reform efforts out of this needs assessment (Togneri & Anderson, 2003).

Change Versus Progress

Learning From History

Over the years, schools and school districts have become very good at changing through the adoption of various reform models and school improvement exercises because that is the expectation that some policymakers, private funding entities, and others have placed on them (Cuban, 1990). However, the lesson that we as educators have learned from many years of school reform efforts is that merely changing school structures, adding programs, or allocating additional resources does not automatically result in improved student achievement—change efforts must be well articulated, focused, and sustained over time if genuine progress is to result (Hall & Hord, 1987; Togneri & Anderson, 2003). It takes a great deal of hard work, a dedication to professional learning, and a commitment to success, with an overarching focus on what happens in each individual classroom between teacher and student.

The implementation of school reform strategies has shown us that the quality of the interaction between a teacher and a student has a significant impact on student achievement and other positive student outcomes (Hamre & Pianta, 2005; Sanders, Wright, & Horn, 1997; Bryk & Schneider, 2002). In fact, research suggests that the quality of children's early relationships with their teachers during the first several years of school is vital in shaping children's academic success over time (Silver, Measelle, Armstrong, & Essex, 2005). To attract, retain, and nurture high-quality teachers, school and district leadership must be strong and complementary to teachers' efforts. Therefore, school districts need to build research-backed systems with resources and at-

tention focused on high-quality classroom instructional practices that lead to enhanced student achievement. These systems and practices can provide the mechanisms necessary to meet the demands of the federal *Every Student Succeeds Act (ESSA)* legislation, the *Individuals with Disabilities Education (IDEA)* Act, other federal regulations, and the accompanying state-mandated accountability systems.

Data-Driven Decision Making

In addition to effectively deploying resources, staff in successful schools establish and contribute to a professional culture that focuses on and supports student learning through data-driven decision making (Togneri & Anderson, 2003; Fiske, Reed, & Sautter 1991). Data are not limited to summative standardized assessment results (Blythe & Gardner, 1990); rather, they encompass findings from formative assessments, student portfolios, guided school walk-throughs conducted by the principal, staff and parent surveys, response to intervention, and so on. These data are routinely collected and analyzed to ensure that priorities and resources are appropriately aligned with students' needs. Effective school leadership is inextricably linked to thoughtful allocation of resources and collective support for, and participation in, PLCs that base their priorities and instructional decisions on demonstrated areas of need.

Successful school districts and schools devote funds to train teachers and administrators about using data to inform decisions about teaching, materials, and professional development. What gets measured gets addressed—measurement of the conditions for education in schools, whether as part of a performance management strategy or not, will tend to increase the attention that educators pay to the significance of these factors (Achieve, Inc., 2002; Rothman, Slattery, Vranek, & Resnick, 2002). Professional development should provide teachers and administrators with strategies for using and analyzing data effectively. Data include student achievement indicators from summative and formative assessments, as well as other indicators of progress and success (Fiske et al., 1991; Blythe & Gardner, 1990). Instruction and student supports must be responsive to the unique needs of student populations, including ELLs, students in special education, and students from low socioeconomic backgrounds. In addition, systems are developed to collect and analyze data from the state assessments and any benchmarking assessments that are used to inform the teaching process.

Often overlooked, value-added analyses of student progress can inform instruction by measuring individual student achievement gains to ensure growth opportunities for all students while predicting students' future academic success. Value-added formulas focus resources on those students who might require additional resources, such as ELLs and special education students. Whereas current measures look at the performance of a group of students at an isolated point in time, "value added analysis focuses on the achievement gains of individual students over time" (Drury & Doran, 2003, p. 1). Furthermore, the implementation of value-added analyses helps align a school's professional development efforts to the areas of greatest need by allowing district and school leaders to use data to make informed decisions about curriculum, instruction, and other student supports. In addition, educators can make data-driven decisions about how to allocate district and school resources to the areas of greatest need to have the maximum impact on student learning. Districts and schools should consider devoting resources to a value-added analysis of student data because this approach will assist educators in ensuring continual progress over time (Drury & Doran, 2003; Raudenbush & Bryk, 2002).

Themes for School Improvement

Schools must focus resources and instructional support from the district and, in some cases, state

education agencies to be successful in raising student achievement. Stemming from its *theory of action*, a district should consider what policies and strategies would best meet student needs and decide whether to select a particular instructional strategy and implement it across the district, or to allow schools the flexibility to choose their own direction based on a set of criteria. In either case, research has demonstrated that clearly articulated and coordinated school district activities, policies, and procedures are central to the sustained success of sustained schools within a given district.

District resources should allocate funding to develop, articulate, and sustain the chosen *theory of action* over time. Preliminary research indicates that the particular *theory of action* chosen is not as important for long-term success as is the simple act of implementing a *theory of action*. Every school and district must know where it is going and how it is getting there to make progress in today's era of standards-based education and accountability.

Support From a Student-Focused School District

Targeted District Support

Although strong leadership is pivotal, school principals alone cannot be held accountable for poor performance within their schools, particularly if they have not been trained and encouraged to build the knowledge, skills, and understanding necessary to improve their abilities as instructional leaders. Raising student achievement must be a coordinated, district-supported effort wherein accountability for student performance is distributed among all district office and school personnel. Furthermore, principals can benefit from leadership development opportunities, such as job-embedded mentoring and peer-to-peer networking activities. Figure 3 illustrates the processes that underline effective instructional leadership at the school and district levels.

In a study done by Reardon (2011), principals rated their own practice of learning-centered leadership behavior (the amalgamation of transformative and instructional leadership that stresses "rigorous curriculum" and "performance accountability"). As a result, "[s]alient, systemic responses to the implications drawn from the principals' self-assessment of their learning-centered leadership provides the context in which the assessment of the principal's leadership drives his or her professional development" (p. 81). Like principals who target "next steps" for teachers, and like teachers who target instruction for their students, district-level support must target, individualize, and personalize its professional learning with (and for) their building leaders, based upon self-assessment and exogenous data. Accordingly, as shown from the study, student outcomes will increase.

Figure 3. Instructional Leadership Functions

High Expectations and Effective Teaching, Learning, and Professional Development

Missions are accomplished and visions are realized when leadership, instruction, and professional development are aligned with schoolwide goals because instructional leadership and practice are the two most important factors in schools (Marzano et al., 2005). Both have an impact on that crucial moment between a teacher and a student when learning takes place, which can be the determining factor for a child in meeting or exceeding standards (Bryk & Schneider, 2002).

Effective teaching encompasses integrated systems of high standards, which are essential for student success. Numerous studies have demonstrated this link (e.g., Venezia, Kirst, & Antonio, 2003; Venezia, Callan, Finney, Kirst, & Usdan, 2005) and have continued to validate and expand the initial work in this area by Rosenthal and Jacobson (1968). The National High School Alliance (2006) provides the following practical guidance in implementing integrated systems of high standards:

- Establish clear and rigorous standards aligned with curricula and entrance requirements for postsecondary education and careers
- Develop and use multiple assessments, including performance-based measures (e.g., portfolios, public exhibitions, capstone projects), that align with standards
- Plan intended outcomes and assessment strategies before initiating a learning activity or project
- Build students' capacity to critique their own work and learning process
- Provide accelerated learning opportunities to help all students meet or exceed standards

- Eliminate academic tracking.

Most of these strategies do not require purchasing materials or adopting a new reform model. Instead, these suggestions require that teachers believe in their students' potential and provide thoughtful opportunities for students to learn and demonstrate their understanding.

A culture of learning is characterized by students, teachers, and school leaders all being held to high standards, and it requires prioritizing student learning over all other matters. High expectations, a curriculum aligned with assessments, acceleration rather than remediation, quality classroom instruction, and job-embedded professional development are hallmarks of successful schools.

Furthermore, much has been written about the development of PLCs and critical friends groups. When teachers are able to develop their skills and knowledge about effective pedagogy and practice in a nonthreatening atmosphere, they build their capacity to focus on and address the needs of all students in their classroom. Sufficient resources should be allocated so that teachers have time to meet and discuss student learning, give and receive workshops and professional development opportunities that build their knowledge base, and receive support from either critical colleagues or coaches. Last, in successful schools and districts, teacher leaders are identified and developed to help guide the culture of learning. Resources can be allocated or redirected to support these capacity-building activities.

Policy and Resources

Effective Policy Has a Key Role in Student Success

"An important reason that school finance systems generally have done a poor job in financing an adequate education is that, in most cases, the formulas that allocate state funds to local school districts fail to recognize that the amount of money needed to provide students with an adequate education is not the same in each school district" (Reschovsky & Imazeki, 2000, p. 2). Some experts (i.e., Ouchi & Segal, 2003) maintain that a Weighted Student Formula, based on the needs of individual students, would be a more effective and fair way of allocating resources to districts and schools. Others believe that decision making about school resources and programs should be made at the district level, where the district can identify programs and target and match available resources to those goals.

Whichever formula or method is used to distribute resources, it should increase the school's capacity for raising student achievement and maintaining that progress.

Money Does Matter

In addition to providing fiscal and moral support for instructional leadership capacity building, schools and districts need to examine current resource allocations to make decisions about what is necessary to get the school moving toward success for all students.

Ouchi and Segal (2003) stress the importance of providing a thorough education for each individual child through a Weighted Student Formula that can potentially provide the most needy schools and students with the targeted resources that they require for success.[9] Although this individualized, student-centered method has had promising results in some districts, another approach that was successfully used in New York City's Community School 2 (NYC's CSD 2) and elsewhere was a routine assessment of funding impact followed by efficient reallocation of resources to where they were needed. This approach significantly elevated reading scores in NYC's CSD 2 over a relatively short time (Resnick, Alvarado, & Elmore, 1996).

Both approaches do not require additional funds; rather, they require the courage and resolve to make bold decisions based on the needs of students, not the opinions of adults who may seek to maintain the status quo.

Although funding and resource allocation are important, we all know that simply throwing money at the issue of increasing achievement levels for all students is not the solution. Bringing a school's mission and vision to fulfillment requires examining the tenets of successful schools and districts, and using those best practices to create a model in the context of a local school or school district that fits those unique needs. Some schools and districts not only have examined the possible reallocation of state and local funds, but also have taken the opportunity to change the way they use Title I and IDEA money to better meet the needs of eligible and potentially eligible students. The answer may be adding more resources or simply redirecting those resources along with using some leadership and management practices that have proven to make a difference in raising student achievement and closing the achievement gap.

Effective Deployment of Resources

Effective school principals recognize that shared accountability requires shared resources. To

[9] The Weighted Student Formula is an approach used within some districts to allocate resources to schools based on the composition of student needs attending each school. Resources or dollar allocations are attached to each student based on the student's need characteristics (e.g., family poverty, English language learner status, or disability), and these resources follow the student to whatever school he or she attends.

truly hold everyone accountable for student success, district and school administrators, teachers, and support staff must have the resources necessary to fulfill their roles. In many successful schools, resources are allocated on the basis of the particular needs of individual students. All instructional personnel—including special education, ELL, and general education teachers—must have the materials and support required to teach effectively and meet students' needs. Also, strong leaders hold schools and responsibility centers accountable through various processes such as budget projections and program evaluations.

As an example, Elfers and Stritkus (2014) studied the "ways in which school and district leaders create systems of support for classroom teachers who work with linguistically diverse students" (p. 305). The study lucidly illustrates the collaborative effort between school and district leaders in mobilizing resources to support ELLs Leaders tapped into both human and financial capital resources: principals hired and utilized bilingual teachers to aid in curriculum modifications, leaders tapped into the community to help fund ELL coaches, and district administrators allocated monies for bilingual teachers to provide professional development to general education teachers to support ELLs' achievement in their respective classes.

Local Context

It also is important to be cognizant of the school and district context when planning improvement strategies. What works in one school or district may not work in another. For example, many rural schools and districts are experiencing declining enrollments, thus presenting unique challenges that are different from the challenges faced by urban schools and districts (Jimerson, 2004). When enrollments are in chronic decline, rural schools experience great financial hardship because of the loss of per-pupil state revenue. For that reason and others, rural educators have different professional learning needs and delivery systems compared with those of urban and suburban educators (Tobin, 2006). Therefore, professional development and other supports for rural educators must be responsive to their situational context.

Prevention, Not Intervention

Safe and positive school climates are fostered by responsive school structures, including prevention and intervention programs for students, particularly at-risk students and students with disabilities. Heckman (2000) conducted a cost-benefit analysis to determine which types of investment (e.g., job training programs, tax reform, higher education subsidies, and early intervention programs) had the most benefit and savings to society. Based on his analysis, he concluded that "the returns to human capital investments are greatest for the young for two reasons: (1) younger persons have a longer horizon over which to recoup the fruits of their investments, and (2) skill begets skill" (p. 3). Heckman demonstrated that a focus on prevention, or early intervention, programs garners greater benefit than do later implemented intervention programs. These findings have been validated in numerous other studies, especially in the areas of early education (Barnett, 1993), preschool (Schweinhart, 2004), mental health (Keenan & Wakschlag, 2000), juvenile justice (Welsh, 2001), alcohol and drug abuse (Wisconsin Clearinghouse for Prevention Resources, 2002), and special education. Therefore, an emphasis should be placed on implementing high-quality prevention programs, although this should not preclude implementing targeted intervention programs.

Policy Related to Rural School May Be Different

Policy considerations in rural districts are likely to be different from those in urban or suburban districts (Jimerson, 2004). For example, many states are partaking in the national trend of ramping up course requirements for high school graduation to meet state and national standards, but

rural schools often do not have the human or material resources to provide all of the required courses, such as foreign languages or technology classes that require specific equipment and materials, which may not be purchased in school districts with perennially shrinking budgets.

Close communication and collaboration among all stakeholders (especially local school boards and state legislators) can result in a successful consolidation or sharing of services of school districts, which may help alleviate the challenges of debt and declining enrollments. However, a recent study of rural schools in Iowa concluded that creating bigger schools with more classes is not likely to raise student achievement (Johnson, 2006). Given that many challenges faced by rural districts result from recent changes in demographics, as well as from state and federal policies, no definite answer exists for addressing those challenges.

There has been a growing emphasis in discussions of school reform on the importance of a sustained and consistent effort at improvement (McAdams, 2006). This focus directly relates to the significance of the development of a *theory of action* to guide a vision for school improvement over time, regardless of changes in school and district administrators and policymakers. School board members need to work with administrators in developing a district *theory of action* that will have an impact on student achievement across the district. Typically, districts set criteria for schools to meet and then choose to manage that work from district offices in a prescriptive way, or they allow schools to meet those criteria by making decisions at the school level. Some districts adopt a hybrid of the two approaches. One strategy is driven by the district and the other assumes that decisions are better made by those educators who are closer to the students and who know the unique needs of the students.

School and the Community

School Community, Climate, and Connectedness

When students feel connected and valued in their schools and community, they succeed. Successful schools recognize that a safe and orderly school environment is necessary for the establishment of a learning culture. They also attend to the varying and specific needs of the elementary, intermediate, and high school levels, which can vary widely depending on the intellectual, social, and psychological maturity of the age group. In addition, successful schools recognize the need for articulation and communication within and across grades, school levels (i.e., eighth-grade teachers should meet with ninth-grade teachers at the high school), and departments, including special education, ELLs, and Title I. They acknowledge that mechanisms for ensuring smooth school transitions ought to be in place and sufficient resources should be allocated for articulation events for teachers, ancillary staff, parents, and students.

A safe and orderly school environment creates the foundation for student engagement in learning activities. The most competent teachers are those who unite challenging content and effective pedagogy to create a dynamic, engaging learning experience for their students. “In general, students need work that develops their sense of competency, allows them to develop connections with others, gives them some degree of autonomy, and provides opportunities for originality and self-expression” (Brewster & Fager, 2000). Innovations for strengthening student engagement and ultimately raising achievement require the support of school and district administrators because strong teachers need supportive leadership to be successful. Effective and targeted professional development for teachers and school leaders gives educators a better understanding of the strategies that motivate students to learn.

Related to providing engaging instruction—particularly at the intermediate and secondary levels—is the need for a personalized learning environment wherein each student's individual progress is noted and encouraged. Much of the mania surrounding the concept of small school learning communities is rooted in an urgency among educators and communities to locate a solution to the problems of low-performing, impersonal high schools. The recent nationwide interest in small schools has largely been fueled by the recognition that if students receive more personalized attention in small classes, they will feel more connected to their schools, engage more with the material, and ultimately perform better (Deutsch, 2003). Resources should be allocated or redirected to provide a safe, nurturing, and age-appropriate learning environment for students, regardless of school or program size. Clearly, sufficient resources need to be allocated to schools to ensure that students have the out-of-classroom supports that they need to be successful. These resources include, but are not limited to, guidance counselors, psychologists, and social workers.

Enhancing students' connection to school, strengthening their commitment to achieve, and developing their social, emotional, and civic competencies improve academic performance and personal growth (Marks, 2000). Furthermore, students with high career aspirations—which can be nurtured through career development programs—are more likely to be engaged in school (Kenny et al., 2006). Many students experience individual-level barriers to learning (such as social, economic, or health challenges), and the provision of high-quality instruction alone will not improve these children's performance. We know that students who attend safe and nurturing schools are more likely to be academically engaged and less likely to exhibit problem behaviors, such as drug use or violence. Students are less likely to drop out of safe schools (Rothstein, 2004).

Professional Learning Communities

In fostering data-driven decision making, a PLC builds the instructional leadership capacity of teachers and administrators. Dynamic school leadership is the most fundamental component of school success because it has a direct impact on the quality of the curriculum, instruction, learning environment, achievement, parent and community engagement, and professional development. Effective school leaders work to focus daily teaching practice and discussion solely on student learning and attainment of state standards. Positive change develops organically out of strong leadership and shared responsibility for student success that focuses on the instructional core; therefore, resources should be allocated for instructional leadership development and support at the district and school levels, such as one-to-one mentoring, teacher leader teams, and peer-to-peer networking activities.

Clearly, establishing PLCs and developing the capacity to effectively collect, analyze, and use data are neither simple nor quick solutions for troubled schools. Fullan and Hargreaves (2012) state, "[t]he current PLC movement should be reconsidered and reconfigured in terms of how well it can become grounded not in implementing outsiders' agendas but in promoting professional capital and all of its three components—decisional, human, and social." Thus, PLCs should focus on the growth of all stakeholders within the school to not only assess data and school performance, but also to bring genuine issues and inquiries to the forefront (Heiftez and Linksy [2017] dub this concept as traditional problems versus adaptive challenges). Careful planning and implementation of these elements require a great deal of patience in the face of urgency, and progress can easily stagnate—or worse, be reversed—in schools and districts with high administrator turnover and other frequent changes.

Enduring Learning

Success develops in districts where the leadership is committed to creating and sustaining an atmosphere that supports student and adult learning. The characteristics of many of these districts follow:

- A rigorous and aligned curriculum for all students focused on the instructional core— see Figure 1 (Elmore, 2009)
- An emphasis on literacy and the integration of literacy in all other content areas, particularly for ELLs (Stahl & McKenna, 2006)
- Structures and supports for creating and nurturing safe, supportive, and successful schools (Osher, Dwyer, & Jackson, 2003)
- Professional development with a focus on instructional leadership and literacy (Wixson & Yochum, 2004)
- District support for the establishment of PLCs at the district and school levels (Hord, 1997)
- Student data that are frequently and systematically collected, analyzed, and used to drive decision making (Learning Point Associates, 2004)
- Internal accountability that accompanies external accountability, meaning that responsibility for student learning and meeting benchmarks is distributed among all educators (Burney, 2004).

In successful districts, schools make a collective commitment to improvement because external factors, such as standards and assessments, may not be enough to create the powerful atmosphere that is needed to move schools forward to meet the demands of a state accountability system. The education of our youth is best addressed in the context of the learning environment that supports the adults who lead the efforts of school reform and accountability.

Parent, Community, and Business Partnerships

The engagement of parents, business leaders, and other community members can contribute to a positive school climate, as well as provide material and human resources that may be lacking. Research indicates that the degree and nature of parent involvement influence students' academic success, including at the middle and high school levels when parent involvement often tapers off (Catsambis, 2002). When families are more involved in their children's education, children earn better grades, attend school more regularly, complete more homework, demonstrate more positive attitudes and behaviors, graduate from high school at higher rates, and are more likely to enroll in higher education than students with less involved families. These benefits of family involvement apply across all income and demographic groups, and from preschool through high school.

Schools and districts may formulate plans for involving parents after determining the challenges to parent engagement in their particular settings. In communities where parents work multiple jobs, providing resources for helping children with homework at home may be valuable for those parents who cannot attend scheduled events. Similarly, "parent involvement programs for rural communities work best when they respond to particular features of the communities they serve" (Maynard & Howley, 1997, p. 1). The programs often provide opportunities for parents to model life management strategies for their children and draw connections between school and the workplace.

In addition to well-planned and implemented parent engagement programs, community and business partnerships can be especially fruitful in rural areas (Warden, 1986). Because rural schools cannot always offer students a variety of course options or a range of extracurricular activities, partnerships with local business and community organizations are an excellent opportunity for students to explore new challenges and engage in project-based learning.

Conclusion

Effective schools build capacity, develop relationships related to effective learning, and monitor progress toward meeting standards. Research on best practices indicates that the most successful school reform strategies are those that emerge through a process involving the entire school community, where various stakeholders come together to design a strategy that meets the unique situational needs of the district. Moreover, the success or failure of any whole-system reform strategy depends on the strength of its implementation; that is, whether it creates tangible and long-lasting improvements throughout the school, the school system, or both. The past decades have taught us that reform happens at the school level, but district supports must be in place to provide and steer resources, professional development, and support and encouragement (a top-down/bottom-up approach). Policymakers, state education agencies, and district administrators need to set criteria, provide support, and allow schools to meet expectations in self-determined ways because educators closest to students know what students need. At the same time, districts need to be ready to intervene in failing schools when necessary.

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Additional Detail on the Calculation of Overhead and District-Level Functions

Here, we provide detail on how spending on overhead and district-level functions was estimated and then added to the adequate costs derived from the PJPs.

Each overhead and district-level expenditure component is defined below:[9]

- Central administrative functions: This category included compensation for district-level administrators (e.g., superintendents, central office staff, human resources, etc.), as well as for costs for district-level Information Technology services, legal services, district equipment, general administration, and other central support.[10]
- Maintenance and operations: This category included compensation for operations managers, custodians, and school security, along with all expenditures related to security and maintenance and operations of plant and facilities.[11]
- Student transportation: This category included compensation for transportation staff, and costs for transportation equipment and fuel. It did not include transportation related to field trips or costs related to the acquisition of buses.[12]
- Food services: This category included compensation for food service staff, and expenses related to food equipment and maintenance, and food supplies. It did not include costs incurred when food was provided during meetings or workshops, or costs for classes to instruct students in food preparation.[13]

We used two separate methods to predict the costs of these overhead and district-level services. One method predicted the per-pupil spending, and the other predicted a ratio of spending in these categories to the remaining spending not included in these categories. We used regression to predict these expenditures and ratios using data aggregated to the district or charter school network. Per-pupil spending and ratios for each category were predicted as a function of total enrollment, percentage of enrollment by grade level, population density, percentage of students from low-income families, percentage of students classified as English learners, percentage of students enrolled in vocational/technical credits, percentage of students with disabilities and complex disabilities, and the Comparable Wage Index for Teachers. As shown in Exhibit D1, the means of the actual and predicted overhead per-pupil spending and ratios weighted by student enrollment were identical. However, the standard

[9] Please see the Delaware Master Account Codes spreadsheet for details on how each expenditure is categorized: https://www.doe.k12.de.us/cms/lib/DE01922744/Centricity/Domain/558/Account%20Codes%20Master%20Document10.22.20.xlsx
[10] In the Master Account Codes spreadsheet, central administrative functions are denoted as having NCES Category codes 2300–2500.
[11] In the Master Account Codes spreadsheet, maintenance and operations functions are denoted as having NCES Category code 2600.
[12] In the Master Account Codes spreadsheet, student transportation functions are denoted as having NCES Category code 2700.
[13] In the Master Account Codes spreadsheet, food service functions are denoted as having NCES Category code 3100.

deviations of the predicted versions of these measures were smaller, indicating that the predictions had less variation than the actual figures.

- *The per-pupil approach*. This first method, which is referred to as the per-pupil approach, added predicted per-pupil amounts using the three most recent school years in each district for these components. On average, the expenditure amounts for central administrative functions, maintenance and operations, student transportation, and food services that were added to the school-level costs estimated from the PJP resource specifications mirrored the amounts that existed in the empirical data. Clearly, this approach yields conservative lower-bound estimates of adequate funding levels for central administration and maintenance and operations because it does not account for possible changes in expenditures to support any expansion in instructional programming suggested by the PJPs to deliver educational adequacy.
- *The overhead ratio approach*. Changes in the size of the instructional program are likely to impact the costs of central support services and overhead. As school-level costs of instructional and related services increase, the need for programmatic supervision, personnel services, business functions, and other planning functions is likely to expand. Further, if additional staff members are required to deliver the instructional program, additional classroom and other instructional space may be necessary to support these programs. It follows that maintenance and operations services would also expand accordingly. We might also surmise that food and transportation costs could increase if more students are enrolled in extended-day or extended-year instructional programs. The overhead ratio approach takes this into account, allowing these district-level functions to change proportionately with changes in the school-level instructional program. The overhead ratio approach should be viewed as an upper bound on the potential change in expenditures for these district-level functions.

Exhibit F1. Comparison of Actual and Predicted District Overhead Expenses, Calculated on a Per-Pupil Basis and as a Ratio

Overhead Category	Overhead per pupil				Overhead ratio			
	Actual		Prediction		Actual		Prediction	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
District Administration	$729	$245	$729	$182	6.1%	1.8%	6.1%	1.4%
Maintenance and Operations	$1,434	$469	$1,434	$396	11.8%	2.6%	11.8%	1.9%
Transportation	$870	$348	$870	$310	7.3%	2.5%	7.3%	2.2%
Food	$631	$139	$631	$105	5.4%	1.4%	5.4%	1.2%

Source. Authors' calculations based on Delaware Fiscal Files data, Delaware Department of Education.

Of course, there are elements of central support services that would not change in proportion to changes in the instructional program. For example, one might imagine that the cost of school board operations and the superintendent's offices might remain relatively constant despite changes in school-level spending. As a result, it is likely that actual costs fall somewhere between the per-pupil and the overhead ratio estimates. In the results that follow, we use the average value of the additional central overhead costs predicted by these two approaches in our cost projections.

District-level special education expenditures. The PJP specifications assumed that students enrolled in special education were to be served largely by staff assigned to schools. However, there may be some centralized, district-level special education staff who are also responsible for ensuring an adequate program for students enrolled in special education. Specifically, there may be specialized staff who serve students with specific types of uncommon disabilities. These staff (e.g., audiologists, occupational or physical therapists, vision therapists) may serve students with specific needs across all schools in a district, or even across multiple districts. The PJPs often noted that centralized supports for students with specific uncommon needs are often provided through services contracted with third-party providers. Contracted services are included as part of the nonpersonnel component of the PJP exercises. However, it is possible that we may not be accounting for district-level special education expenditures. Because of the richness of the special education programs described during the PJPs and the additional contracted services costs already included, we chose not to account for additional district-level special education services so as to not double-count and potentially overestimate the cost of providing special education services.

Regression Analysis of Adequate Costs Derived from PJP Program Designs

Using the costs calculated from the program designs, we conducted a regression analysis to estimate an equation describing how the measure of overall per-pupil cost of providing an adequate school program was associated with the different student characteristics and enrollments distinguishing the various school models. The regression included overall adequate per-pupil cost (dependent variable) as a function of schooling level enrollment shares (proportions of enrollment in the elementary, middle, and high school grades); natural log of enrollment (centered on the statewide average); percentages of students from low-income families, classified as EL students, students with disabilities, and students with disabilities with intense and complex disabilities; and panel specific indicators as follows:

$$Cost\ Per\ Pupil = f(Schooling\ Level, Enrollment, Low\ Income\ \%,$$
$$EL\ \%, SWD\ \%, Complex\ and\ Intense\ SWD\ \%, Panel\ Indicators)$$

The equation was estimated using a Poisson regression, which exponentiates the right side of the equation and is similar to estimating an ordinary least squares regression with a logged outcome variable. However, there are several advantages to using Poisson over models using a logged outcome variable. First, outcomes can be predicted in one step from estimated Poisson models, rather than predicting a logged outcome and then having to exponentiate the predictions and account for nonlinear standard errors. Second, Poisson handles small values of the outcome variable better than models using a logged outcome variable. Further, in comparative simulations of Poisson and models using logged outcome variables, Poisson models have proved to be as or more accurate (Gould, 2011; Silva & Tenreyro, 2006)

The regression results are presented in Exhibit E.1. The constant can be interpreted as a base per-pupil cost of school-level programming for an average-sized school with no additional needs as specified by the Kent A panel. The remaining coefficients can be interpreted as multipliers of the base cost and are centered on 1. In other words, a value of 1 represents no change from the base cost. Values greater than 1 represent factors that when present (or higher) increase costs, while coefficients below 1 result in reduced costs.[14] The panel indicators represent how much higher or lower the estimated base cost would be for each panel's specifications.

[14] Due to the small number of data points, the results of this analysis in terms of statistical significance of the estimated coefficients should be treated with caution. The main purpose of this analysis was to develop relationships between the PJP-generated measures of adequate per-pupil costs and the factors included in the model based on a collection of school-level data points that span purposeful ranges of student needs, not to draw statistical inference from these estimated relationships. To this end, while measures of statistical significance are reported, we stress that these should be interpreted with caution.

Exhibit F2. Regression Results Predicting Adequate Cost Per-Pupil at the School Level

Add column head?	Coefficient
Student needs	
Low-income proportion	1.57*
Disabilities proportion	3.19*
Intense and complex disabilities proportion	8.21
English learner proportion	1.75*
Programming/grade range	
Middle school enrollment proportion	0.91*
High school enrollment proportion	1.03
School enrollment	
Number of students (ln)	0.94
Panel indicators	
Kent B	1.17***
New Castle A	0.91***
New Castle B	0.89***
Sussex A	0.96
Sussex B	0.89***
Constant	11,294.7***
Number of observations	108
pseudo R^2	0.651

Exhibit Reads. An increase in the low-income student proportion from 0 to 1 (i.e., from no low-income students to 100% low-income students) is associated with 57% more spending per student, on average, holding all other cost factors in the model constant.

Note. Coefficients shown are exponentiated coefficients from a Poisson regression. The constant term represents the per-pupil cost with all other coefficients set to 1. The number of students for enrollment is mean-centered, making the constant reflective of an average-sized school. The reference panel is Kent A. Data are from the professional judgment panel specifications from six panels, six school tasks, and three grade levels. The costs represented do not include costs associated with district or central administration, maintenance and operation of facilities, food service, and student transportation. *$p < .05$. **$p < .01$. ***$p < .001$.

Additional Exhibits

Exhibit F3. School Characteristics by Low-Income Quintile

	Q1	Q2	Q3	Q4	Q5
Needs indexes					
Needs index (PJP)	1.43	1.67	1.86	2.07	2.18
Needs index (ECM)	1.56	1.80	1.88	2.10	2.33
Student needs index (PJP)	1.34	1.61	1.80	1.97	2.08
Student needs index (ECM)	1.30	1.50	1.64	1.78	1.98
Student needs					
Low-income percentage	11.2	23.8	32.7	40.7	56.7
Disabilities percentage	14.3	18.6	21.1	23.0	24.0
Complex disabilities percentage	1.2	1.5	1.8	1.9	1.9
Intense disabilities percentage	2.0	3.9	4.7	5.0	4.8
English learner percentage	4.5	10.1	13.9	18.4	15.0
Programming/grade range					
Vocational/technical units proportion	4.4	5.6	2.4	3.1	0.55
Elementary school enrollment percentage	38.3	33.5	49.0	44.6	68.12
Middle school enrollment percentage	20.4	23.1	25.5	24.8	28.10
High school enrollment percentage	41.3	43.4	25.5	30.6	3.79
Population density (Population per square mile)	1,424.4	1,073.6	1,152.7	1,558.7	2,534.0
School enrollment	1,104.4	1,120.5	919.4	820.4	554.5
N	**40**	**40**	**40**	**40**	**39**

Exhibit F4. School Characteristics by Students With Disabilities Quintile

	Q1	Q2	Q3	Q4	Q5
Needs indexes					
Needs index (PJP)	1.51	1.64	1.75	1.92	2.41
Needs index (ECM)	1.68	1.72	1.83	2.00	2.40
Student needs index (PJP)	1.42	1.57	1.70	1.85	2.27
Student needs index (ECM)	1.35	1.49	1.60	1.72	2.02
Student needs					
Low-income percentage	21.3	26.0	30.7	36.4	42.9
Disabilities percentage	12.2	17.3	20.2	23.3	30.5
Complex disabilities percentage	0.7	1.0	1.7	1.6	4.0
Intense disabilities percentage	2.6	3.0	3.9	4.9	6.4
English learner percentage	9.0	12.4	11.7	12.9	14.5
Programming/grade range					
Vocational/technical units proportion	6.8	2.5	2.8	2.3	1.5
Elementary school enrollment percentage	31.1	52.7	42.2	44.4	60.6
Middle school enrollment percentage	13.4	26.1	34.4	28.0	20.1
High school enrollment percentage	55.6	21.2	23.4	27.6	19.4
Population density (Population per square mile)	1,530.4	1,139.3	1,340.2	1,357.3	2,029.3
School enrollment	1,263.7	863.6	833.1	933.5	650.1
N	**40**	**40**	**40**	**40**	**39**

Exhibit F5. School Characteristics by English Learner Quintile

	Q1	Q2	Q3	Q4	Q5
Needs indexes					
Needs index (PJP)	1.49	1.64	1.85	1.95	2.19
Needs index (ECM)	1.71	1.81	1.96	2.00	2.01
Student needs index (PJP)	1.42	1.59	1.74	1.88	2.08
Student needs index (ECM)	1.41	1.54	1.64	1.72	1.74
Student needs					
Low-income percentage	21.7	27.7	29.9	36.7	38.6
Disabilities percentage	15.3	19.2	21.7	22.6	20.78
Complex disabilities percentage	1.2	1.5	2.0	1.7	1.8
Intense disabilities percentage	2.5	3.3	4.3	4.9	5.5
English learner percentage	2.1	5.0	9.4	15.5	32.5
Programming/grade range					
Vocational/technical units proportion	6.2	3.5	3.0	2.5	1.4
Elementary school enrollment percentage	24.6	36.7	54.7	42.0	73.0
Middle school enrollment percentage	23.8	27.0	19.1	35.2	13.6
High school enrollment percentage	51.7	36.4	26.2	22.8	13.4
Population density (Population per square mile)	1,255.2	1,087.0	2,036.2	1,511.4	1,433.0
School enrollment	1,112.0	970.7	1,017.9	771.6	775.7
N	**40**	**40**	**40**	**40**	**39**

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AIR® Headquarters
1400 Crystal Drive, 10th Floor
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