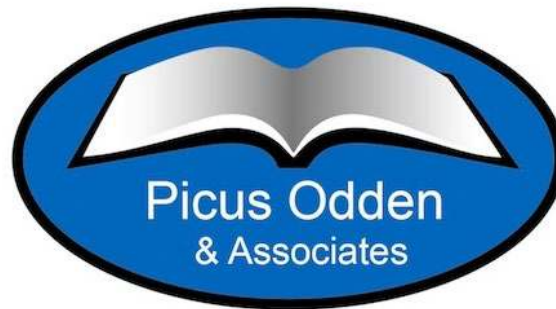


**INVESTING SO SCHOOLS WORK:
THE EVIDENCE-BASED CALCULATION TOOL IN
THREE PENNSYLVANIA SCHOOL DISTRICTS**

**Prepared for
Research for Action
Philadelphia, Pennsylvania**



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Chapter 1

Introduction and Overview

For the past eighteen years, Picus Odden & Associates (known as Lawrence O. Picus and Associates prior to 2013) have worked across the country helping state legislatures and other state agencies estimate the level of funds needed for all students to allow them to “work,” i.e., produce high levels of performance on state standards. The goal of this work has been to identify a level of resources that would enable all districts and each school within those districts to provide every student, regardless of individual characteristics or circumstances, with an equal opportunity to learn to high performance standards. Over time, as both curriculum and performance standards have been increased and as states have adopted college and career ready standards for reading/language arts, mathematics, and science, the Evidence Based (EB) model developed by Odden and Picus has evolved to meet the changing and more rigorous expectations of K-12 schools, as well as the changing health, psychological, mental health and behavioral conditions of the country’s school children.

For this project, the ratios, formulas and per pupil dollar figures in the Evidence-Based (EB) Model were incorporated into an EXCEL-based Schools That Work Calculation Tool. Three Pennsylvania school districts populated the tool with their current student, staffing, and budget data. The Tool then calculated the resources needed for all schools in each district to become “schools that work.” In other words, schools with the resources necessary to offer every student – including students in poverty, ELL students, and students with mild and moderate disabilities – an opportunity to achieve to the state’s college and career ready standards. This report explains the methodology and presents the results for the three Pennsylvania school districts who participated in the study.

ORGANIZATION OF THE REPORT

Three chapters follow this introductory chapter. Chapter 2 describes the school improvement approach that is the foundation of the EB funding model. Chapter 2 draws from research we and others have conducted on schools that have dramatically moved the student achievement needle, i.e., schools that work. Such schools exist across the country and vary by location – urban, suburban and rural – and by school size – large, medium, and small – and with high, medium and low percentages of low income and ELL students.

Chapter 3 then “unpacks” the elements of these “schools that work” and includes specific recommendations for every element of the model. Chapter 3 describes in brief all the elements of the EB model that were used in this project, organized into five categories: Tier 1 or core instruction, extra resources for students struggling to meet standards, school administration, non-academic pupil supports, and other operational school elements. Appendix A provides more detail on all elements of the EB model, including those that were not addressed in this project.

Chapter 4 discusses the gap between EB costs and the actual resources in the three districts that were part of the study, drawing from the EXCEL-based computer simulation we have developed,

called the Schools That Work Calculation Tool. This tool allows districts to compare their current, school-base curriculum and instructional resources to those that would be provided by the EB model.

Please note that none of the figures in this analysis include resources for preschool, the central office, student activities, transportation, food services, costs of students with severe and profound disabilities, or capital construction costs. The EB model mainly addresses the curriculum and instructional resources at the school level, and thus the Calculation Tool excludes all central office functions. The project also focused on kindergarten through grade 12, and thus preschool was excluded.

A Metaphor for Understanding the Evidence-Based Funding Model. The EB approach to school finance provides a set of resource and program recommendations that we call the “Education Hybrid Car.” The typical hybrid car costs about the what the average car costs in America (about \$30,000) but gets double the miles per gallon (50 v. 25 miles per gallon). One can easily spend more on a car than the cost of a basic hybrid but not get the high mileage; for example, one could buy a speedy V-8 engine-powered car, with moon roof and leather. Such a car may provide better “performance” by some measures, but also compromises efficiency in other areas, such as gas mileage.

The EB Model, similar to a hybrid car, is designed for high performance with the most efficiency. The school cases that we have studied, and which deploy strategies that are funded by the EB model (e.g., Odden, 2009, 2012), generally produce dramatic improvement in student achievement. Further, many of these schools enroll large percentages of ELL and poverty students so the combined strategies are effective for these students as well. Moreover, it is our professional position that if Pennsylvania provided school funding at the level of the EB model, including the extra resources triggered by the ELL and poverty students, and if schools used the resources in the model as indicated in Chapter 2, then student achievement in the state would dramatically rise, including achievement of ELL and poverty students. The following chapters describe the high performance EB school funding model, and a funding model that if implemented would allow all schools in Pennsylvania to “work,” i.e., produce much higher levels of student achievement and reduce current demographic-related achievement gaps.

Chapter 2

The Evidence Based School Improvement Model as an Approach to Schools That Work

Although the intent of this report is to identify the gap between current school resources and the array of educational goods that would allow Pennsylvania schools to “work,” i.e., provide each student, including ELL and poverty students, an equal opportunity to meet the state’s student performance standards, the purpose of this chapter is to describe the elements of the school improvement strategy that are embedded within the EB funding model. While the linkage between school funding and student performance is complex, the Evidence-Based (EB) model is designed to identify a level of resources that would enable all schools to provide every student with robust opportunities to meet college and career ready standards, and dramatically move the student achievement needle.

No matter what course of studies a high school student completes – college prep or career tech – all of Pennsylvania’s students are expected to achieve to college and career-ready standards in order to be competitive after high school or college in today’s global, knowledge-based economy. This includes children from low-income homes, students of color, English language learners (ELL) and students with mild and moderate disabilities. The basket of educational goods and services and a cost-based funding model to support that basket must be sufficiently robust to allow students in all school districts in the state to have sufficient opportunities to attain these rigorous standards.

Before presenting an overview of each component of the Evidence-Based approach to school finance adequacy in Chapter 3, this chapter provides a more general description of the school improvement strategies that form the foundation of the EB Model and describe how the key resource elements are used to increase student performance.

THE HIGH-PERFORMANCE SCHOOL STRATEGY EMBEDDED IN THE EVIDENCE-BASED MODEL

The EB Model is unique in that it is derived from research and best practices that identify programs and strategies that boost student learning, including learning for ELL and poverty students. Further, the formulas and ratios for school resources developed from that research have been reviewed by dozens of educator panels in multiple states over the past decade. The EB Model relies on two major types of research:

1. Reviews of research on the student achievement effects of each of the EB Model’s individual major elements, with a focus on randomized controlled trials, the “gold standard” of evidence on “what works.” Analyses of this research can be found in the fifth edition of our school finance text (Odden & Picus, 2014, Chapter 4) and in our most recent adequacy studies conducted for Michigan (Odden & Picus, 2018).
2. Studies of schools and districts that have dramatically improved student performance over a 4-6-year period – what is sometimes labeled “a doubling of student performance” on state assessments.

As a result of our research and work in other states, the EB approach today is more explicit in identifying the components of the school improvement strategies that deploy the resources in the funding model, and it articulates how all the elements of the EB Model are linked at the school level to strategies that, when fully implemented, produce notable improvements in student achievement.

High performing “schools that work”¹ have clear and specific, as well as ambitious and rigorous, student achievement goals, including goals to reduce achievement gaps linked to poverty and minority and English proficiency status. The goals are most often specified in terms of performance on state assessments.

Compared to schools where teachers work in isolated classrooms, high performing schools organize instruction differently. Regardless of the context – urban, suburban, or rural, rich or poor, large or small – high performing schools organize teachers into collaborative teams: grade level teams in elementary schools and subject or course teams in secondary schools. With the guidance and support of instructional coaches, the teacher teams work with student data – usually short-cycle or formative assessment data – to:

- Plan standards-based curriculum units,
- Teach those units simultaneously,
- Debrief on how successful the units were, and
- Make changes when student performance does not meet expectations.

This collaborative teamwork makes instruction “public” over time by identifying a set of instructional strategies that work in the teachers’ school. Over time all teachers in these schools are expected to use the instructional strategies that have been demonstrated to improve student learning and achievement.

High performing schools that work also provide an array of “extra help” programs for students struggling to achieve to standards. This is critical because the number of struggling students is likely to increase as more rigorous programs are implemented and the goal is to prepare all students for college and careers. Individual tutoring, small group tutoring, after-school academic help and summer school focused on reading and mathematics for younger students, and courses needed for high school graduation for older students, represent the array of “extra help” strategies these improving schools deploy. These strategies are particularly key for students from poverty and ELL backgrounds. The school approach is to “hold standards” constant for all students and vary instructional time as needed.

These schools exhibit multiple forms of leadership. Teachers lead by coordinating collaborative teams and through instructional coaching. Principals lead by structuring the school to foster instructional improvement. The district leads by ensuring that schools have the resources to deploy the strategies outlined above with a focus on attaining aggressive student performance goals, improving instructional practice and taking responsibility for student achievement results.

¹ The report uses the phrases high performing schools, successful schools and schools that work interchangeably, referring to schools that adhere to a set of practices that research and case studies show improve student performance and reduce achievement gaps.

High performing schools seek out top talent. They know that the challenge to prepare students for the competitive and knowledge-based global economy is difficult – and even more challenging for students from poverty and ELL backgrounds – and requires smart and capable teachers and administrators to effectively get the educational job done.

Our firm continuously enhances the details of the strategy of school improvement embedded in the EB Model. The most recent summary of the research undergirding the EB funding model can be found in the Odden and Picus (2014) school finance textbook, and in several books that profile schools and districts that have moved the student achievement needle (Odden & Archibald, 2009; Odden, 2009; Odden, 2012). We recently studied dramatically improving schools in Maryland, Vermont, and Maine as part of school finance studies we completed in those states. We found the theory of improvement embodied in the EB Model reflected in nearly all the successful schools we studied (Picus, Odden, et al., 2012; Odden & Picus, 2015a; Odden & Picus, 2015b). In addition, other researchers and analysts have found similar features of schools that significantly improve student performance and reduce achievement gaps (e.g., Blankstein, 2010, 2011; Chenoweth, 2007, 2009, 2017). We have updated our research in the forthcoming sixth edition of our textbook, *School Finance: A Policy Perspective*.

After a comprehensive set of studies and analyses, Greg Duncan and Richard Murnane (2014) reached conclusions similar to those embedded in the EB Model. They note that if all students in a school are to have a chance at success in the emerging global economy, they will need high-quality preschool programs, followed by effective elementary and secondary schools. The key features needed in each school include: 1) leadership focused on improving instructional practice, 2) within-school organization of teachers into teams that over time create a set of effective instructional practices and then deploy them systematically in all classrooms, 3) a culture of assistance (e.g., instructional coaches and ongoing professional development) and accountability (e.g., adults taking responsibility for the impact of their school actions on student performance), and 4) an array of extra help strategies to extend learning time for any student who needs more time to achieve to standards.

Although the details of studies of improving and high performing schools vary, and different authors highlight somewhat different elements of the process, the overall findings are more similar than different. This suggests all schools can improve the performance of all students if they have adequate resources *and* deploy those adequate resources in the most effective ways.

The EB Model offers a framework for the use of resources by districts and schools to help them focus those resources on programs and strategies that would allow them to produce substantial gains in student academic performance. In addition to the above more global description of the EB effective schools, we have organized the key elements of the school improvement model embedded in the EB Model into ten areas. In general, we find schools and districts that produce large gains in student performance adhere to the following ten similar strategies (see Chapter 4 and 5 of Odden & Picus, 2014; Odden, 2009), resources for each of which are included in the EB Funding Model:

1. **Analyze student data** to gain knowledge about performance issues and to understand the nature of any achievement gaps. The test score analysis usually first includes review of state test results and then, over time, analysis of formative/short cycle (e.g., Renaissance Learning Star Enterprise) as well as benchmark assessments (e.g., NWEA MAP) to help tailor instruction to precise student needs, to progress monitor students with an Individual Education Plan to determine whether interventions are working, and to follow the performance of students, classroom, and the school over the course of the academic year. Improving schools are “performance data hungry.”
2. **Set high goals** such as aiming to educate at least 95% of all students in the school to proficiency or higher on state reading, math and science tests; seeing that a significant portion of the school’s students reach advanced achievement levels; having more high school students take and pass AP classes; and making significant progress in closing the achievement gap between the average student and students from poverty and ELL backgrounds. The goals tend to be explicit and far beyond just producing “improvement” or “making AYP.” Further, because the goals are ambitious, even when not fully attained they help the school produce large gains in student performance and represent a school that works.
3. **Review evidence on good instruction and effective curriculum.** Successful schools throw out the old curriculum, replace it with a different and more rigorous curriculum, and over time create their specific view of what good instructional practice is to deliver that curriculum. Changing curriculum is a must for schools implementing more rigorous college and career ready standards. And such new curriculum requires changes in instructional practice. Successful schools also want *all* teachers to learn and deploy new content-based, instructional strategies in their classrooms and seek to make good instructional practice systemic to the school and not idiosyncratic to teachers’ individual classrooms.
4. **Invest heavily in teacher training** that includes intensive summer institutes and longer teacher work years, provide resources for trainers, and, most importantly, fund instructional coaches in all schools. Time is provided during the regular school day for teacher collaboration focused on improving instruction. Nearly all improving schools have found resources to provide instructional coaches to work with school-based teacher data teams, to model effective instructional practices, to observe teachers and to give helpful but direct feedback. This focus has intensified now that schools are delivering a more rigorous curriculum focused on educating all students to college and career proficiency levels. Further, professional development is viewed as an ongoing and not a “once and done activity.”
5. **Provide extra help for struggling students** and, with a combination of state funds and federal Title 1 funds, provide some combination of tutoring in a 1:1, 1:3, or 1:5 teacher to student format. In some cases, this also includes extended days, summer school, and in addition English language development for all ELL students. These Tier 2 interventions in the Response to Intervention (RTI) approach to helping struggling students achieve to standards are absolutely critical. For many students, one dose of even high-quality

instruction is not enough; many students need multiple extra help services to achieve to their potential. No school producing large gains in student learning has ignored extra help strategies altogether or argued that small classes or preschool were sufficient on their own.

6. **Restructure the school day to provide more effective ways to deliver instruction.** This can include multi-age classrooms in elementary schools, block schedules and double periods of mathematics and reading in secondary schools, and “intervention” periods at all school levels. Schools also “protect” instructional time for core subjects, especially reading and mathematics. Further, most improving schools today organize teachers into collaborative teams – grade level teams in elementary schools and subject/course teams in secondary schools. These teams meet during the regular school day, often daily, and collaboratively develop curriculum units, lesson plans to teach them, and common assessments to measure student learning that results from them. Further, teams debrief on the impact of each curriculum unit, reviewing student learning overall and across individual classrooms.
7. **Provide strong leadership** and support for data-based decision making and improving the instructional program, usually through the superintendent, the principal and teacher leaders. Instructional leadership is “dense” and “distributed” in successful schools; leadership derives from the teachers coordinating collaborative teacher teams, from instructional coaches, the principal and even district leaders. Both teachers and administrators provided an array of complementary instructional leadership.
8. **Create professional school cultures** characterized by ongoing discussion of high quality instruction, with teachers and administrators taking responsibility for the student performance results of their actions. Over time, the collaborative teams that deliver instruction produce a school culture characterized by: 1) high expectations of performance on the part of both students and teachers, 2) a systemic and school-wide approach to effective instructional practice, 3) a belief that instruction is public and that good instructional practices are expected to be deployed by every individual teacher, and 4) an expectation that the adults in the school are responsible for the achievement gains made or not made by students. Professionals in these schools accept responsibility for student achievement results.
9. **Bring external professional knowledge into the school**, e.g., hire experts to provide training, adopt new research-based curricula, discuss research on good instruction, and work with regional education service agencies as well as the state department of education. Schools that work do not attain their goals by “pulling themselves up by their own boot straps.” Faculty in successful schools that work aggressively seek outside knowledge, find similar schools that produce results and benchmark their practices to them, and operate in ways that typify professionals.
10. **Finally, talent matters.** Many improving schools consciously seek to recruit and retain the best talent, from effective principal leaders to knowledgeable, committed, and effective teachers. They seek individuals who are mission-driven to boost student

learning particularly students from poverty and ELL backgrounds, willing to work in a collaborative environment where all teachers are expected to acquire and deliver the school's view of effective instructional practice, and who are accountability focused.

Such successful schools also create a learning atmosphere inside the schools, have a schoolwide approach to discipline and classroom management, and require that every student be accountable to any adult for his/her behavior and that all adults take interest in all students and hold them accountable for the behavioral practices in the school. In addition, schools that work reach out to parents, insure that parents know the expectations of the school and help their children with homework, and welcome all parents into the school.

In sum, the schools that have boosted student performance that we and others have studied deployed strategies strongly aligned with those embedded in the EB Model. These practices bolster our claim that if such funds are provided *and* used to implement these effective and research-based strategies, then significant student performance gains should follow.

Three Tier Approach

It should be clear that the design of the EB Model reflects the Response to Intervention (RTI) model. RTI is a three-tier approach to meeting student needs. Tier 1 refers to core instruction for all students. The EB Model seeks to make core instruction as effective as possible with its modest class sizes, provisions for collaborative time including duty/supervisory aides to relieve teachers from non-teaching duties (bus, hall, recess and lunch coverage), and robust professional development resources including school-based instructional coaches. Effective core instruction is the foundation on which all other educational strategies depend. Tier 2 services are provided to students struggling to achieve to standards before being given an individualized education program (IEP) and labeled as a student with a disability. The EB Model's current Tier 2 resources, which are provided to every ELL and poverty student, include one core tutor for every prototypical school and then additional resources, triggered by poverty and ELL student counts, for tutoring, extended day, summer school, and additional pupil support. To that is added even more language resources for ELL students. We argue also that the robust levels of Tier 2 resources allow schools to provide a range of extra help services that get many modestly struggling students back "on track," and thus reduce the levels of special education students. Tier 3 includes all special education services.

In addition, the EB model provides substantial non-academic pupil support including guidance counselors, nurses, social workers, etc. recognizing the increased health, behavioral, psychological and other needs of today's school children.

Chapter 3

The Elements in the EB Model

INTRODUCTION

This chapter provides an overview of elements in the EB Funding Model that were part of this project's analyses. Detail on the research behind and rationale for each element, as well as EB elements not included in this project, can be found in Odden and Picus (2014; a sixth edition of this text will be available in 2019) and our most recent state adequacy study (Odden & Picus, 2018²). The elements of the EB Funding Model are presented in five categories:

1. Elements that constitute Tier 1, core instruction
2. Elements that include extra resources for students struggling to achieve to academic standards – Tier 2 and Tier 3
3. Resources for non-academic pupil support
4. School administration
5. Other operational elements.

Tier One: Core Instruction

Tier one instruction includes core and elective teachers, pupil free time provided by supervisory aides to relieve teachers from duty periods so they can work in collaborative groups, ongoing professional development with instructional coaches, funds for curriculum and instructional materials so all texts are up-to-date, and school-based instructional technologies. The specifics are:

- For core teachers, the model is based on class sizes of 15 for grades K-3 and of 25 for grades 4-12. The model includes full day kindergarten. For a K-5 elementary school, these class size figures produce an average class size of 17. In addition to using these class sizes for determining *core teachers*, the model provides an additional 20% of teachers to provide elective classes (art, music, physical education, career technical education, etc.) in elementary and middle schools, and an additional 33% in high schools.
- Supervisory aides (for bus, lunch, hall and recess duties) are provided at the rate of 1 for every 225 elementary and middle school students and every 200 high school students.
- Professional development: 1 instructional coach for every 200 students and \$125 per pupil for the training portion of professional development.
- \$215 per pupil for curriculum materials, library books and short-cycle assessments.
- \$250 per pupil for school-based technology: computers, printers, servers, software, etc.

² See: <http://picusodden.com/wp-content/uploads/2018/06/Michigan-2018-Adequacy-Study.pdf>

Tier 2: Extra Help for Students Struggling to Meet Rigorous Academic Standards and Tier 3, Special Education Services

The model provides the following staff to provide *extra instructional support for students* needing more help to learn to standards:

- Tutors, or Tier 2 Intervention staff, at the rate of 1 for every 450 elementary and middle school students and 1 for every 600 high school students, as well as one for every 100 ELL students and every 100 non-ELL students in poverty
- Extended day staff at the rate of 1 for every 120 ELL students and 120 non-ELL students in poverty
- Summer school staff at the rate of 1 for every 120 ELL students and 120 non-ELL students in poverty, and
- Staff for ESL instruction at the rate of 1 for every 100 ELL students.
- Special education staff, Tier 3: 1 special education teacher for every 141 students (all students not just students with a disability) and 1 school psychologist for every 1000 students (for developing IEPs)

It is important to note that ELL students trigger tutors, extended day and summer school staff, as well as ESL staff, and as noted next, additional pupil support staff. We note this fact because, when assessing just the ESL staff, the model has been inaccurately criticized for providing too few additional resources for ELL students. (Jimenez-Castellanos & Topper, 2012).

Resources for Non-Academic Pupil Support

In addition, the model provides the following *staff for non-academic services*:

- 1 guidance counselor for every 450 elementary students and for every 250 middle and high school students
- 1 nurse position for every 750 students
- 1 additional pupil support position for every 125 ELL students and 125 non-ELL students in poverty.

School Administration

- 1 principal for every elementary, middle and high school, and assistant principals at the rate of 1 for every 450 elementary and middle school students above the first 450, and one for every 600 high school students
- 1 school secretary for every 225 elementary and middle school students and for every 200 high school students.
- 1 school computer technician for every 600 students.
- 1 librarian for every school, and library paraprofessionals for larger schools.

Other School Elements

- \$40 per student for students in gifted and talented programs

- \$300 per student for student activities including sports programs, except for transportation (though this element was not included in this project)

As explained above, this project did not address preschool, operations and maintenance, the central office, transportation, food services, high cost special education, debt service or capital construction.

Chapter 4

Pennsylvania Study Districts

The project involved three school districts across Pennsylvania: one in southeast Pennsylvania, one in south-central Pennsylvania (about 30 miles north of Gettysburg) and one in a northwestern suburb of Pittsburgh. In the summer and fall of 2018, each district entered the necessary student, staff and expenditure data into the Schools That Work Calculation Tool. The results below summarize the key findings in comparing the *current* staff and spending for each district to the staff and spending *needed* under the Evidence-Based Model, as estimated by the Calculation Tool.³

The main district-level findings from the Schools That Work Calculation tool were summarized for each district in a four-page document. Toward the end of October, late afternoon or evening community meetings were organized in each of the participating districts. Parents, community and school board members, teachers and administrators were invited to participate in these community meetings. Following a short overview of the EB model, those in attendance were provided the four-page district findings and, for each of the main findings, asked to “vote” via text messaging on whether they thought the EB allocations were “much too high,” “too high,” “about right,” “too low,” or “much too low.”

After each initial vote, attendees broke into small groups to discuss their responses and document reasons for their votes. Following these 5 to 10-minute discussions, attendees were given the opportunity to change their vote. The goal of this exercise was to understand the range of community support, or lack of support, for the various allocations of the EB model in comparison to current district practices. Although the EB model provided more total resources for each of the districts, in some instances and for some elements in some districts, the EB model provided fewer resources for other elements. One objective of the community meetings was to obtain community input about the details of each of the EB elements, as well as to better understand the unique characteristics of each district.

³ Note that the analysis for this project excludes resources for preschool, high-cost special education, the central office, operations and maintenance, transportation, food services, student activities and capital construction.

Butler Area School District

Butler Area School District is located in Western Pennsylvania, just north and west of Pittsburgh. It is a working-class community, with only one of three historic steel plants still operational. In the past the school district served close to 12,000 students, but the student population in 2016-17 had declined to 6,578. In that year, it spent \$15,685 per student on total expenses.⁴ This study analyzed only the portion of the budget related to the instructional expenses included in the EB model, which in 2017-18 totaled \$7,646 per student.⁵

In terms of demographics, the student body is approximately 93 percent white, 2 percent African-American, 2 percent Latino and 3 percent other. About 41 percent of students are in poverty, 1 percent English Language Learners (ELL) and 15 percent with disabilities.

Table 4.1 provides summary data on the key findings from the Schools That Work Calculation Tool. The first finding is that the EB model would provide about the same school administration, providing one less principal and 2 additional assistant principals. The district actually provided two principal positions to the middle school, while the EB model would provide 1 principal and 1 assistant principal. The EB model also would almost double the number of secretaries in Butler's schools. Further, the model would provide eleven and a half school computer technicians compared to none today.

In terms of core instruction, the EB would make some important additions.

- First, the EB model would provide about 40 additional core teachers and slightly fewer elective teachers. The increased core teachers result primarily from the EB model's class size of 15 in grades K-3.
- Second, the EB would substantially increase funding for professional development. It would increase the training element of professional development (tripling the current amount of \$254,250 to \$790,250). Following that, the EB model would provide 29 instructional coaches compared to no instructional coaches currently. Thus, the EB allocation would significantly enhance the training element of the district's professional development program by providing the key instructional coaches that give teachers classroom assistance in trying to incorporate new pedagogical strategies into their classroom repertoire.
- Third, the EB model would increase non-instructional aides (for hall, lunch, bus and recess duties) from 6 to 30. Since most teachers in the district's schools have one period a day of non-instructional duties, the EB's non-instructional aide allocations would allow the district to turn these teacher "duty periods" into pupil free time that could then be

⁴ We used state expenditure and revenue data to calculate this figure; but all revenue per pupil figures from the Calculation Tool used the pupil count included in the tool, which was slightly different from the state figure.

⁵ For Butler Area School District, 6,322 students were included in the EB Calculation Tool. As discussed above, the EB model does not analyze expenditures related to capital costs, operation and maintenance, transportation, student activities, central office, or the costs associated with preschool or students requiring high cost special education services.

used to schedule teacher teams to enable data-based decision making over the curriculum and instructional program.

- Fourth, the EB model would double the amount spent on curriculum materials and increase the amount spent on school-based technologies by a factor of five. In sum, the EB model would allow the district to dramatically strengthen the core, Tier 1 instruction of all teachers.

In terms of the Tier 2 and 3 programs that provide extra help to struggling students – ELL programs, special education and other strategies to help those students learn to standards – it is best to view the special education, academic extra help staff, summer school and extended day staff together. Butler is somewhat unusual in providing no special education aides, a service strategy in line with the EB model. Butler does provide 65 teachers for special education Tier 3 service and just 15 academic extra help staff. The EB model would provide only 45 special

**Table 4.1
Current versus EB Staff and Revenues
Butler Summary: Current Versus EB**

Title	Current	EB	Position Cost	Revenue Gap: Current – EB*
District Totals				
Principals	10.00	9.00	\$131,033	\$131,033
Assistant Principals, deans, etc.	5.00	6.97	\$139,682	(\$274,863)
Instructional Coaches	0.00	28.87	\$82,181	(\$2,372,771)
Core Teachers	259.91	299.95	\$82,181	(\$3,290,253)
Specialist/elective Teachers	74.30	70.60	\$82,181	\$304,289
SPED Teachers	65.22	44.84	\$82,181	\$1,675,105
ESL Teachers	1.66	0.34	\$82,181	\$108,792
Academic Extra Help Staff	26.00	40.77	\$82,181	(\$1,213,448)
Non-Academic Pupil Support	15.00	44.01	\$82,181	(\$2,384,053)
Nurses	8.60	8.43	\$82,181	\$14,026
Extended Day / Summer School Staff	25.00	23.67	\$82,181	\$109,575
Instructional Aides	109	0.00	\$33,663	\$3,669,2671
Non-Instructional Aides	6.00	29.78	\$33,663	(\$800,544)
SPED Aides	0.00	0.00	\$33,663	0
Librarians	8.84	9.00	\$82,181	(\$13,149)

School Computer Technicians	0.00	11.45	\$33,663	(\$385,479)
Library Paraprofessionals	5.90	5.47	\$33,663	\$14,512
Secretaries / Clerks	17.65	29.78	\$50,265	(\$609,770)
Total Staff Resource Gap				(\$5,317,752)
Discretionary Funds				
Professional Development	\$254,250	\$790,250		(\$536,000)
Technology	\$337,500	\$1,580,500		(\$1,243,000)
Inst. materials / Assessments	\$559,125	\$1,359,230		(\$800,105)
Gifted and Talented	\$404,280	\$252,880		\$151,400
Total Discretionary Gap	\$1,555,155	\$3,982,860		(\$2,427,705)
Total Revenue Gap				(\$7,745,457)
Average Total Revenue Gap Per Pupil**				(\$1,225)

* Totals may differ due to rounding.

** 6,322 students included in the Calculation Tool.

education teachers (a decrease of 20 teachers) but would provide 41 academic extra help positions (Tier 2), an increase of 15 positions over that provided by Butler. Butler and the EB model provide a similar level of extended day and summer school staff (both also Tier 2). Thus, the EB model and Butler provide close to a similar level of extra resources for students needing extra academic help, with Butler actually providing modestly more staffing for these students, including students with mild and moderate disabilities.

The EB model would increase non-academic pupil support staff, such as guidance counselors, social workers, psychologists, family liaisons, etc. The EB approach would increase these staff from a current level of 15 to a new total of 44, allowing schools to provide significantly more counseling and related services.

In terms of paraprofessionals, Butler funded 109 instructional aides while the EB model would provide none. This is one area Butler could consider for reallocating current resources.

Overall, the resources identified through the EB model would require an additional \$10 million, or a hike of \$1,225 per pupil in Butler. This amounts to a 16 percent increase over the current budget categories reviewed by the EB Model.

The key takeaways from this analysis suggest that the EB model would:

- Strengthen core instruction by reducing class size to 15 in elementary grades K-3
- Further strengthen core instruction by enhancing professional development through increased resources for training and providing many more instructional coaches, as well as providing supervisory aides to free teachers from lunch, bus, hallway and bus duties so they have more pupil-free time to engage in daily teacher collaborative work,

- Increase resources for more current curriculum and computer and related technology materials,
- Provide about the same number of staff for the range of extra help services provided to struggling students, ELL students and students with mild and moderate disabilities, and
- Increase counseling and related pupil support services.

The Community meeting generally supported the allocations of the EB model. The proportion voting “about right” was 76% for core teachers, 63% for non-academic pupil support, 70% for instructional materials and technology, 67% for professional development, and 74% for the overall increase. On the other hand, about 70% percent of the community felt that the EB number of instructional aides was either too low or much too low.

Chambersburg Area School District

Chambersburg Area School District is located in south-central Pennsylvania about 30 miles north of Gettysburg. It is an “urban-rural” community, with a rising Latino population. Many of the new immigrants work on the farms surrounding the city as well as in temporary day jobs in urban areas within commuting distance, such as Harrisburg. It has had a relatively stable student population that totaled 9,330 in 2016-17. In that year, it spent \$14,675 per student on total expenses, including capital and other expenditures. This study analyzed only the portion of the budget related to the instructional expenses included in the EB model, which in 2017-18 totaled \$7,786 per student.⁶

In terms of demographics, the student body is approximately 65 percent white, 8 percent African-American and 19 percent Latino. About 53 percent of students are in poverty, 7 percent English Language Learners (ELL) and 12 percent have been identified as having disabilities that require an IEP.

Table 4.2 provides summary data on the key findings from the Schools That Work Calculation Tool. The first finding is that the EB model would provide more school administration, providing four additional principals and one less assistant principal. The district actually staffs several schools with head-teachers who teach close to a full load and receive a stipend for their administrative work. The EB model would provide those schools with principals. The model would also increase the number of school secretaries from 37 to 43 and increase the number of school computer technicians from 6 to 17.

The EB model would provide several additional resources for Tier 1, core instruction:

- The EB model would increase the number of core teachers by about 35 positions. Specifically, the EB model would increase core teachers for elementary schools, keep them about the same for middle schools, and decrease them for the high schools. The result would be that EB class sizes would average 17 in the district’s elementary schools, compared to the current average of about 23; 25 in the middle schools; and 25 in the high schools compared to the current average of closer to 20 in the middle and high schools.
- The EB model would nearly double elective teachers in elementary schools, cut them by two-thirds in middle schools, and decrease them by a third in the high schools. This shift would allow for more art, music and physical education classes in elementary schools as well as more pupil-free time for teachers to facilitate organizing teachers into collaborative work teams during the school day. The reduction in elective teachers in the secondary schools would still allow the district to provide sufficient electives but would reduce the wide range now provided and in costly smaller class sizes.
- In terms of professional development, the EB model would dramatically enhance instructional coaches and expenditures for training. The number of instructional coaches

⁶ For Chambersburg Area School District, 9,249 students were included in the EB Calculation Tool. As discussed above, the EB model does not analyze expenditures related to capital costs, operation and maintenance, transportation, student activities, central office, or the costs associated with preschool or students requiring high cost special education services.

would rise from 25 to 41, and dollars for the training aspect of professional development would increase from \$94,000 to \$1.16 million.

- The EB model increases supervisory aides (for lunch, hall, recess and bus duties) from 15 to nearly 43, a staffing addition which could free teachers from any “duty periods” and allow them to engage in collaborative work with other teachers.
- The EB model would increase funds for instructional materials and technology by a third, from about \$3 to \$4 million.

Table 4.2
Current versus EB Staff and Revenues
Chambersburg Summary: Current Versus EB

Title	Current	EB	Position Cost	Revenue Gap: Current – EB*
District Totals				
Principals	13.00	17.00	\$134,911	(\$539,645)
Assistant Principals, deans, etc.	10.00	9.18	\$109,535	\$89,819
Instructional Coaches	24.90	40.73	\$85,163	(\$1,348,130)
Core Teachers	412.00	447.46	\$85,163	(\$3,019,961)
Specialist/elective Teachers	136.00	103.17	\$85,163	\$2,796,026
SPED Teachers	58.00	65.51	\$85,163	(\$639,628)
ESL Teachers	23.83	6.25	\$85,163	\$1,497,166
Academic Extra Help Staff	23.27	60.07	\$85,163	(\$3,133,904)
Non-Academic Pupil Support	12.00	61.97	\$85,163	(\$4,255,917)
Nurses	20.00	12.32	\$85,163	\$654,392
Extended Day / Summer School Staff	0.00	34.20	\$85,163	(\$2,912,575)
Instructional Aides	41.00	0.00	\$23,657	\$969,937
Non-Instructional Aides	15.00	42.55	\$23,657	(\$651,777)
SPED Aides	47.00	0.00	\$23,657	\$1,111,879
Librarians	11.99	17.00	\$85,163	(\$426,667)
School Computer Technicians	6.00	17.28	\$23,657	(\$265,241)
Library Paraprofessionals	14.90	6.18	\$23,657	\$205,619
Secretaries / Clerks	37.00	42.55	\$34,577	(\$191,941)
Staff Resource Gap				(\$10,060,570)
Discretionary Funds				
Professional Development	\$94,132	\$1,156,125		(\$1,061,993)
Technology	\$0	\$2,312,250		(\$2,312,250)

Inst. materials / Assessments	\$3,132,466	\$1,988,535		\$1,143,931
Gifted and Talented	\$241,230	\$369,960		(\$128,730)
Total Discretionary	\$3,467,828	\$5,826,870		(\$2,359,042)
Total Revenue Gap				(\$12,419,611)
Average Total Revenue Gap Per Pupil**				(\$1,343)

* Totals may differ due to rounding.

** 9,249 students included in the Calculation Tool.

In sum, the model would allow the district to strengthen core, Tier 1 instruction in multiple ways. The Tool suggests differences in Tier 2 and 3 supports as well.

It is best to view the special education, academic extra help staff, summer school, extended day staff and ELL staff together. Chambersburg provides 58 teachers for special education service, 23 academic extra help staff, 24 ELL staff, and no extended day and summer school staff. The EB model would increase all those numbers except ELL: 65 special education teachers (an increase of 7 teachers), 60 academic extra help positions (an increase of 37 positions) and increase extended day and summer school staff resources (an increase from none to 34). Thus, the EB model would increase total staff for mild and moderate special education, ELL services, academic extra help, extended day and summer school from 105 to 165 positions, an increase of 60 positions, which the district could allocate as it deems best.

The EB model provides fewer instructional and special education paraprofessional/aide resources, dropping the current total of 88 to zero. The EB model has a built-in preference for certified teachers to provide instructional services, so the decrease in paraprofessional staff is partially offset by the increase in staff for more instructional resources. However, as noted above, the EB model increases the number of supervisory/duty aides to free teachers to engage in collaborative work with other teachers rather than perform those non-academic duties.

The EB model would also increase non-academic pupil support staff, such as guidance counselors, social workers, psychologists, family liaisons, etc. The EB approach would increase these staff from a current 12 to 62, allowing schools to provide significantly more counseling and related services.

Overall, these additional resources would require an additional \$12.4 million, or an increase of \$1,343 per pupil, which is a 17.2 percent increase over the portion of the district's budget analyzed by the EB Model.

The key takeaways from this analysis suggest that in the Chambersburg Area School District the EB model would:

- Strengthen core instruction by:

- reducing class size to 15 students in elementary grades K-3, partially paid for by increasing class sizes in high schools, and decreasing elective teachers in middle and high schools
- dramatically enhancing professional development by increasing funds for training and more instructional coaches, as well as increasing the number of supervisory aides to free teachers from hall, lunch, recess and bus duties, thus giving teachers more pupil-free time to allow for collaborative work during pupil free periods
- increasing resources for more current curriculum and computer and related technology materials
- Increase resources to provide extra academic services to struggling students, ELL students and students with mild disabilities, and having those services provided by licensed teachers rather than paraprofessional aides, and
- Increase counseling and related pupil support services.

The Community meeting in Chambersburg reflected mixed support for the allocations of the EB model. The share voting “about right” for core teachers for grades K-3 was 77 percent. However, the bulk of those present felt the EB model provided too few teachers for grades 4-12, 54 percent voting that the EB model was too low for that staffing element. Though the community generally supported the EB model’s professional development resources, it voted in strong numbers for more paraprofessional staff and even more for instructional materials and technology. In terms of the overall increase of \$12.4 million, only half those at the meeting voted “about right,” with the other half voting that more money was needed.

Upper Darby

Upper Darby School District is an inner ring suburban district just west of Philadelphia. It is a modestly growing school district, with an increasing African-American and Latino population. The student population totaled 12,395 in 2016-17. In that year, it spent \$15,103 per student on total expenses, including capital and other expenditures. This study analyzed only the portion of the budget related to the instructional expenses included in the EB model, which in 2017-18 totaled \$9,608 per student.⁷

In terms of demographics, the student body is approximately 47 percent African-American, 28 percent white and nearly 8 percent Latino. About 65 percent of students are in poverty, 7 percent English Language Learners (ELL) and 15 percent with disabilities. Over the past several years, poverty, ELL and minority concentrations have increased.

Table 4.3 provides summary data on the key findings from the Schools That Work Calculation Tool. The first finding is that the EB model would provide modestly more school administration, providing three and a third additional principals. The model also would increase the number of school secretaries, from 38 to 57, an increase of 19 positions, as well as boost the number of school computer technicians from 10 to 23.

The second finding is that the EB model would enhance staffing and funds for core, tier one instruction across several areas. The model would:

- Increase core teachers by 104 positions, from 489 to 593, with the increases occurring largely in the elementary K-3 grades
- Increase elective teachers by 5 positions
- Increase supervisory aides to free teachers from duty periods, and thus allow the district to organize teachers into collaborate work teams during pupil free times during the regular school day
- Expand professional development by increasing instructional coaches from 14 to 53, a hike of 39 positions, and boost funds for the training element of professional development by over \$1.2 million, and
- Boost spending for updated curriculum materials and technology by nearly \$3 million.

In sum, the EB model would allow the district to enhance all key elements of core instruction as the prime way to boost student achievement and reduce demographic achievement gaps.

In terms of extra (Tier 2 and 3) resources for students struggling to meet rigorous academic standards, the community and district were more at odds with the approach of the EB model. Though the EB model increased licensed staff to provide extra instructional help for struggling students from 46 to 113 and increased extended day and summer school staff from zero to 73 positions, it also reduced the number of special education teachers from 148 to 87 and the

⁷ For the Upper Darby School District 12,289 students were included in the EB Calculation Tool. As discussed above, the EB model does not analyze expenditures related to capital costs, operation and maintenance, transportation, student activities, central office, or the costs associated with preschool or students requiring high cost special education services.

number of ESL staff from 27 to 10, a reduction of 17 positions. Overall, for all these services, the EB model would provide 63 additional staff positions but arrayed differently. The concept behind the EB model is to provide extra help to struggling students before they are provided an IEP and identified as a student with a disability, and to serve ELL students in sheltered-English classes, rather than pull out classes.

Table 4.3
Current versus EB Staff and Revenues
Upper Darby Summary: Current Versus EB

Title	Current	EB	Position Cost	Revenue Gap: Current – EB*
District Totals				
Principals	14.00	14.00	\$179,838	\$0
Assistant Principals, deans, etc.	10.00	13.31	\$158,358	(\$523,637)
Instructional Coaches	13.89	59.22	\$104,177	(\$4,722,088)
Core Teachers	488.50	592.92	\$104,177	(\$10,878,174)
Specialist/elective Teachers	132.47	137.51	\$104,177	(\$525,261)
SPED Teachers	147.84	87.16	\$104,177	\$6,321,881
ESL Teachers	27.00	10.01	\$104,177	\$1,769,969
Academic Extra Help Staff	45.98	112.78	\$104,177	(\$6,958,684)
Non-Academic Pupil Support	61.00	108.77	\$104,177	(\$4,976,657)
Nurses	17.00	16.39	\$104,177	\$64,034
Extended Day / Summer School Staff	0.00	72.91	\$104,177	(\$7,595,380)
Instructional Aides	8.00	0.00	\$34,772	\$278,173
Non-Instructional Aides	296.00	56.64	\$24,786	\$5,932,859
SPED Aides	61.00	0.00	\$34,772	\$2,121,066
Librarians	12.50	14.00	\$104,177	(\$156,266)
School Computer Technicians	9.94	22.88	\$34,772	(\$450,089)
Library Paraprofessionals	12.00	12.31	\$34,772	(\$10,663)
Secretaries / Clerks	38.00	56.64	\$52,655	(\$981,482)
Total Staff Resources Gap				(\$21,290,441)
Discretionary Funds				
Professional Development	\$288,521	\$1,536,125		(\$1,247,604)
Technology	\$1,328,569	\$3,072,250		(\$1,743,681)
Inst. materials / Assessments	\$1,287,715	\$2,642,135		(\$1,354,420)

Gifted and Talented	\$1,926	\$491,560		(\$489,634)
Total Discretionary	\$2,906,732	\$7,742,070		(\$4,835,338)
Total Revenue Gap				(\$26,125,779)
Average Total Revenue Gap Per Pupil				(\$2,126)

* Totals may differ due to rounding.

** 12,289 students included in the Calculation Tool.

Further, the EB model provides resources for licensed staff to provide these extra help services rather than paraprofessional aides. And Upper Darby had many such aides. As a result, the EB model reduced the number of special education aides in this district from 61 to zero, and the number of “personal care assistants (PCA),” individuals who work 1-1 with students largely on behavioral issues, by close to 250 positions. As could be expected, these changes were not supported by the community, which felt that their use of paraprofessional aides and PCAs were necessary.

In terms of non-academic pupil support (guidance counselors, social workers, etc.), the EB model would increase the number of those positions by 48 staff, from 61 to 109 positions. However, more than half of the community felt that even more were needed.

Net, these additional EB resources would require an additional \$26.1 million, or an increase of \$2,126 per pupil, which is a 22.1 percent increase over the portion of the current budget that was reviewed under this analysis.

The key takeaways for Upper Darby are that the EB model would:

- Strengthen core instruction by:
 - increasing the number of core teachers, as well as reducing class size in elementary grades K-3 to 15
 - dramatically enhance professional development by increasing funds for training and more instructional coaches
 - increasing the number of supervisory aides to free teachers from hall, lunch, recess and bus duties, thus giving teachers more pupil-free time to allow for collaborative work during pupil free periods,
 - increasing resources for more current curriculum and computer and related technology materials,
- Provide more certified staff resources for struggling students, ELL students and students with mild disabilities, and having those services provided by licensed teachers rather than paraprofessional aides, and
- Increase counseling and related pupil support services.

The community generally supported the EB model additions to core instruction. About 68 percent supported the increase in core teachers, with the remaining believing that even more core teachers were needed. The enhanced professional development resources were also generally supported by the bulk of the community members present at the meeting. Fully 72 percent supported the EB levels for instructional materials and technology. But, as noted, the community did not support the EB model’s restructuring of the approach to Tier 1 and Tier 3 staffing, with

fully 96 percent voting that the EB model’s allocation of special education aides and personal care assistants was either way too low or too low. Finally, though the community agreed with the EB model that more resources were needed, the majority expressed that even more was needed than the EB provided and that the EB reductions were not supported, especially the reductions in paraprofessionals.

Summary Comments

For all three districts, the EB model would enhance core, Tier 1 instruction by decreasing class sizes in elementary grades, increasing funding for the training aspect of professional development together with increasing the number of instructional coaches, the latter being crucial to having the training result in improved instructional practices. These resources alone should provide a student achievement bump for all three districts. The EB model also would increase funding for textbooks, curriculum materials and school-based computer technologies in all districts.

The EB model would also expand the Tier 2 staff providing extra instructional help for students struggling to meet rigorous academic standards. These additional resources could be reasonably expected to provide an additional increase in overall student achievement as well as reduction in achievement gaps linked demographics.

Additionally, the EB model would enhance the counseling, social work, nurse and other non-academic supports for students, reflecting these greater needs by a student population bringing greater social, behavioral, health and family issues to schools.

Interestingly, the EB model would modestly increase administrative staffing in all three districts. In most other states where the EB model has been reviewed by educations, the consistent recommendation has been to increase the EB school administration staffing. Given these facts, it seems that current school administration in these three districts is on the “leaner” rather than “fatter” side.

The major difference between what the EB model would provide centers around paraprofessionals: the districts and their communities prefer to use a much larger number of instructional aides, while the EB model provides no instructional aides even for special education and provides only non-instructional aides to strengthen core, Tier 1 instruction by removing teachers from lunch, hall, recess and bus duties and thus freeing them up for collaborative teamwork instead, the latter being one of the hallmarks of schools that work.

**Table 4.4
Three District Summary**

School District	Current Revenue (Portion Analyzed)	Revenue Required for EB Model	Recommended Percent Increase	Recommended Per Pupil Increase
Butler Area	\$48,340,089	\$56,087,311	16%	\$1,225

Chambersburg Area	\$72,014,307	\$84,434,873	17.2%	\$1,343
Upper Darby	\$118,077,950	\$144,205,579	22.1%	\$2,126

Finally, in every district the EB found that more resources were needed, averaging over an 18 percent increase over current spending in the portions of the budgets analyzed by the EB Model. The increases were largely in the core instruction (Tier 1) and extra instructional services (Tier 2) areas. If such funds were provided and used as the EB model indicates, the state could reasonably expect significant overall improvements in student achievement and reductions in the achievement gaps linked to student demographics.

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Appendix A

2018 CORE EB RECOMMENDATIONS FOR ALL ELEMENTS

Model Element	2016 Evidence-Based Recommendation
Staffing for Core Programs	
1a. PreSchool	Full day preschool for children aged 3 and 4. One teacher and one aide in classes of 15. This element is not part of the Pennsylvania study.
1b. Full-Day Kindergarten	Full-day kindergarten program. Each K student counts as 1.0 pupil in the funding system.
2. Elementary Core Teachers/ Class Size	Grades K-3: 15 Grades 4-5/6: 25. (Average class size of 17.3)
3. Secondary Core Teachers/ Class Size	Grades 6-12: 25. Average class size of 25
4. Elective/ Specialist Teachers	Elementary Schools: 20% of core elementary teachers Middle Schools: 20% of core middle school teachers High Schools: 33 1/3% of core high school teachers
5. Instructional Facilitators/ Coaches	1.0 Instructional coach position for every 200 students
6. Core Tutors/ Tier 2 Intervention	One tutor position for every 450 elementary and middle school students and for every 600 high school students (Additional tutors are enabled through poverty and ELL pupil counts in Elements 22 and 26)
7. Substitute Teachers	5% of core and elective teachers, instructional coaches, tutors (and teacher positions in additional tutoring, extended day, summer school, ELL, and special education)
8. Core Pupil Support Staff, Core Guidance Counselors, and Nurses	1 guidance counselor for every 450 grade K-5 students 1 guidance counselor for every 250 grade 6-12 students 1 nurse for every 750 students. (Additional student support resources are provided on the basis of poverty and ELL students in Element 23)
9. Supervisory and Instructional Aides	1 for every 225 elementary and middle school students 1 for every 200 high school students
10. Library Media Specialist	1.0 library media specialist position for every school, and
10.1 School Computer Technicians	1.0 school computer technician for every 600 students
10.2 Library Paraprofessionals	1.0 paraprofessional for every 450 elementary and middle school students after the first 450, and for every 600 high school students after the first 600

Model Element	2016 Evidence-Based Recommendation
11. Principals and Assistant Principals	1.0 principal for the first 450-students in elementary and middle school, and 1 assistant principal for every additional 450 students 1.0 principal and 1.0 assistant principal for the first 600-student high schools and 1 assistant principal for each additional 600 students
12. School Site Secretarial and Clerical Staff	1.0 secretary position for every 225 elementary and middle school students 1.0 secretary position for every 200 high school students
Dollar Per Student Resources	
13. Gifted and Talented Students	\$40 per <i>every</i> pupil, not just gifted and talented pupils
14. Intensive Professional Development	10 days of student-free time for training built into teacher contract year, by adding five days to the average teacher salary \$125 per pupil for trainers (In addition, PD resources include instructional coaches [Element 5] and time for collaborative work [Element 4])
15. Instructional Materials	\$190 per pupil for instructional and library materials \$50 per pupil for each extra help program triggered by poverty and ELL students as well as special education
16. Short Cycle/ Interim Assessments	\$25 per pupil for short cycle, interim and formative assessments
17. Technology and Equipment	\$250 per pupil for school computer and technology equipment
18. CTE Equipment/ Materials	\$10,000 per CTE teacher for specialized equipment
19. Extra Duty Funds/Student Activities	\$300 per student for co-curricular activities including sports and clubs for grades K-12 \$50 per preschool student
Central Office Functions (not included in Pennsylvania study)	
20. Operations and Maintenance	Separate computations for custodians, maintenance workers and groundskeepers, and \$305 per pupil for utilities
21. Central Office Personnel/ Non-Personnel Resources	A dollar per student figure for a prototypical 3,900 student Central office based on the number of FTE positions generated – 8 professional and 15 classified positions – and the salary and benefit levels for those positions. The per pupil figure also includes \$300 per pupil for misc. items such as Board support, insurance, legal services, etc.
Resources for Struggling Students	
22. Tutors	1.0 tutor position for every 100 ELL students and one tutor position for every 100 non-ELL poverty students.

Model Element	2016 Evidence-Based Recommendation
23. Additional Pupil Support Staff	1.0 pupil support position for every 125 ELL students and one tutor position for every 125 non-ELL poverty students.
24. Extended Day	1.0 teacher position for every 120 ELL and for every 120 non-ELL poverty students.
25. Summer School	1.0 teacher position for every 120 ELL and for every 120 non-ELL poverty students.
26. ELL staff for English Language Learner (ELL) Students	<p>As described above:</p> <ul style="list-style-type: none"> 1.0 tutor position for every 100 ELL students 1.0 pupil support position for every 125 ELL students 1.0 extended day position for every 120 ELL students 1.0 summer teacher position for every 120 ELL students, <p>In addition,</p> <ul style="list-style-type: none"> 1.0 ESL teacher position for every 100 ELL students.
27. Alternative Schools	<p>One assistant principal position and one teacher position for every 7 ALE students in an ALE program.</p> <p>One teacher position for every 7 Welcome Center eligible ELL students.</p>
28. Special Education	<p>8.1 teacher positions per 1,000 students, which includes:</p> <ul style="list-style-type: none"> 7.1 teacher positions per 1,000 students for services for students with mild and moderate disabilities and the related services of speech/hearing pathologies and/or OT PT. <p>This allocation equals approximately 1 position for every 141 students.</p> <p style="text-align: center;">Plus</p> <ul style="list-style-type: none"> 1.0 psychologist per 1,000 students to oversee IEP development and ongoing review, included in the central office calculation. This provides 3.9 psychologist positions in the central office. <p style="text-align: center;">In addition</p> <p>Full state funding for students with severe disabilities, and state-placed students, and Federal Title VIB,</p> <p style="text-align: center;">with a cap on the number covered at 2% of all students.</p>