Accelerate

The National Collaborative for Accelerated Learning

Conducting Cost Analysis of Tutoring Interventions

A Guide for Program Providers and Researchers

RESEARCH REPORT

Prepared By
Luke Kohlmoos
Matthew P. Steinberg, Phd

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Matthew Steinberg, Managing Director of Research & Evaluation at Accelerate and corresponding author, may be contacted at: matthew.steinberg@accelerate.us.

About Accelerate

The National Collaborative for Accelerated Learning

Accelerate is a national nonprofit organization that serves as a central hub for proliferating effective, evidence-based academic interventions. By bridging gaps between research, policy, and school systems, Accelerate aims to embed proven high-dosage tutoring programs into public schools now and for the long term.

Accelerate funds innovation in schools, supports high-quality research, and advances a federal and state policy agenda to support this work. Accelerate was incubated and launched by America Achieves in 2022, and is a lead technical assistance partner to the National Partnership for Student Success (NPSS). In its initial years of work, Accelerate has made grants to over 60 programs across 29 states and has funded and supported over 65 research studies, including 21 randomized control trials.

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For more information, visit https://www.accelerate.us.

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Executive Summary

In a post-pandemic climate marked by sustained declines in student achievement and the end of federal fiscal aid, "Does it work?" is a necessary though no longer sufficient question to ask about educational investments. Instead, "Is it worth it?" must be the focus of policymakers and school leaders when considering which educational interventions to support with increasingly limited educational budgets. In May 2024, Accelerate introduced an approach to measure and estimate the return on educational investments which requires both a valid estimate of program impact and data on the total cost of implementing an educational intervention (Kohlmoos & Steinberg, 2024). The return on educational investments, or a program's cost-effectiveness, is defined as the additional months of student learning gained by investing $1,000 per pupil, and can be widely applied to all educational interventions. Yet, while the cost of implementing an educational program or intervention provides critical information to multiple stakeholders, program costs tend to be absent from program evaluations, limiting insight into the return on educational investments.

In this report, we: (i) describe the value of collecting and estimating program costs in the education field; (ii) summarize existing approaches to costing out educational interventions; and (iii) draw upon existing literature, in particular the Ingredients Method (Levin & McEwan, 2001), to present a standardized approach to costing out educational interventions. Accompanying this report is Accelerate's cost analysis tool, designed specifically for conducting cost analysis of tutoring programs. While the tool is focused on tutoring, the standardized approach can be tailored and applied to other educational interventions.

Our aim is to provide program providers and researchers with a standardized approach and an applied tool to conduct rigorous cost analysis of educational programs and interventions. In doing so, we aim to address the relative dearth of program cost estimates currently available in the education field. By increasing the frequency with which cost analysis is conducted, this work will provide guidance to inform program planning and implementation and the necessary information to conduct a variety of cost-related analyses. The greater prevalence of program cost data and associated cost-related metrics will serve to reduce existing information asymmetries in the tutoring market and will support ongoing decision-making among policymakers and educational leaders who are investing scarce resources to improve student learning.

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Part 1

Introduction

There is a long history of research into whether money matters for improving educational and life outcomes for students. Increasing educational expenditures does matter, especially for low-income students (Jackson & Mackevicius, 2024). This literature links aggregate increases in per pupil educational spending, typically following state-level finance reforms, to changes in educational outcomes. Yet, this literature provides less insight into how (and why) school leaders allocate aggregate increases in funding across different educational interventions. Moreover, the literature on whether money matters in education offers little guidance to school leaders and decision makers on the most efficient and productive allocation of educational resources, and remains relatively silent on whether (and the extent to which) different categorical uses of educational resources might generate differential improvements in student outcomes.

Recently, the infusion of federal aid via the Elementary and Secondary School Emergency Relief (ESSER) Fund provided district leaders with wide latitude to select educational interventions to address pandemic-induced student learning loss. Educational leaders allocated ESSER funds across a range of interventions, including high-dosage tutoring, small-group interventions, afterschool programs, and extended school-years (Carbonari et al., 2022). At the same time, evidence suggests that the impact of specific educational interventions varies widely (Kraft & Falken, 2021). For example, recent meta-analytic evidence indicates that tutoring has significant impacts on student learning (Nickow et al., 2024; Kraft et al., 2024), outperforming other educational interventions such as class size reduction, vacation academies, summer school, and extended school day/year. Thus, school leaders should prioritize the allocation of educational resources toward programs with the greatest return on student outcomes.

While evidence indicates that different educational interventions generate different impacts on student outcomes, we know less about the costs associated with these educational interventions, both in terms of the specific inputs required to successfully implement an educational intervention and the budgetary costs faced by districts. And further, estimates of program impact (typically reported in standardized units of student learning like standard deviations) provide little insight into the efficiency of educational investments - that is, whether educational resources are being allocated to interventions that yield the greatest return on a dollar invested in terms of improvements in student learning. In a post-pandemic climate marked by the end of ESSER funding, it is increasingly important that school leaders have the information necessary to most efficiently allocate their increasingly limited resources.

To support policymaker and school leader decisions on the efficient allocation of educational resources, Accelerate introduced a measure of student learning achieved per dollar of educational investment (Kohlmoos & Steinberg, 2024). This measure of cost-effectiveness - defined as the

additional months of student learning produced at a fixed per pupil cost of $1,000 - can be widely applied to all educational interventions. As Kohlmoos & Steinberg (2024) document, two pieces of information are necessary to construct a measure of a program's cost-effectiveness: (i) a program impact estimate from a well-designed randomized controlled trial (RCT);[1] and (ii) valid cost data to cost out all inputs associated with implementing an educational program or intervention. Valid and comparable cost data is necessary for maintaining cost-effective programs in schools with limited time and money. "Does it work?" is a necessary though no longer sufficient question to ask about educational investments. Instead, "Is it worth it?" is the question of the day, one that can be answered by estimating the cost-effectiveness of educational interventions.

In this report, we extend our earlier work and present a guide for program providers and researchers to cost out educational interventions. We focus on tutoring programs, though this approach can be tailored to and applied more broadly to many other types of educational programs and interventions.

Specifically, this report:

1. Describes the value of collecting and estimating program costs in the education field;
2. Summarizes existing approaches to costing out educational interventions; and
3. Draws on existing literature, in particular the Ingredients Method, to present a standardized approach to costing out educational interventions.

This standardized approach can be applied by program providers and researchers to personalized learning initiatives and educational interventions more broadly. Accompanying this report is Accelerate's cost analysis tool, which has been developed to implement the standardized approach to costing out educational interventions as outlined in this report.

For program providers, program cost data is an essential component of program improvement. For example, understanding the range of inputs contributing to a program's cost is necessary to identify potential inefficiencies in program design (e.g., specific inputs that may not be providing the necessary return on time and/or effort) as well as modeling implementation scenarios in which student enrollment in a given program exceeds or falls short of expectations. Transparency around

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1 Randomized controlled trials (RCTs) are the gold standard for producing causal estimates of program impact, and should be the primary research method employed in program evaluations to generate valid average treatment effects of tutoring (and other educational) interventions. A well-designed RCT with at least 350 study participants that meets What Works Clearinghouse (WWC) standards without reservations is required for ESSA Tier 1 evidence (i.e., Strong Evidence) of program impact. At the same time, an RCT may not always be feasible to implement. As such, strong quasi-experimental methods such as a regression discontinuity (RD) design, which produces the local average treatment effect of an intervention, may be employed in the calculation of a program's cost-effectiveness. A strong quasi-experimental design that meets WWC standards with or without reservations (including at least 350 study participants) is required for ESSA Tier 2 evidence (i.e., Moderate Evidence) of program impact. Whereas RCT and RD research designs can generate causal estimates of program impact, the application of non-experimental methods such as propensity score matching or pre-post comparisons produce correlational estimates and thus misleading estimates of both a program's impact and cost-effectiveness.

program costs can inform decisions in the presence of staffing variability, such as using different types of staff to fulfill roles or using more or fewer staff to fulfill program objectives. Perhaps most importantly, a measure of cost-effectiveness informs decisions about ongoing (or increased) investment in a given program or intervention.[2]

Applied research tends to prioritize program impact while paying far less attention to program cost. We believe attention should be paid to both impact and cost. Researchers conducting program evaluations should collect not only outcome data, but also programmatic cost data, enabling calculation of a program's cost-effectiveness.

For educational leaders, transparency into program costs informs resource allocation decisions. These include the specific resource requirements - time, labor, facilities, etc., - to fully implement an educational intervention. Awareness of the specific resource requirements enables school leaders to assess whether the program they are purchasing represents the same program that may have been previously evaluated (in another school or district setting) to show a positive impact on student learning. Clarity into the costs associated with educational interventions also serves as an important management tool for school leaders, clarifying the specific roles that school-based personnel might be required to play to support program implementation. The availability of program cost data enables school leaders to compare program costs to the costs of similar programs implemented in other school and district settings. A measure of a program's cost-effectiveness goes even further, providing critical information to compare the expected return on finite educational dollars that could be allocated across different educational interventions.

In this report, we offer guidance on the identification and collection of valid programmatic cost data to inform ongoing evaluations of program impact and estimates of the return on educational dollars.

Part 2

Why Collect Program Cost Data?

Answering the question "How much will implementing this program or intervention cost, and what is the distribution of those costs?" (Frank, et al., 2005) is at the core of this report. We focus on providing guidance to various stakeholders on conducting programmatic cost analysis - identifying

2 Changes to an existing program model from that which was rigorously evaluated and found to produce a valid impact estimate could alter the impact of the program in future evaluations. For example, a year-long (i.e., 2-semester) program was found to be effective at improving student learning. Yet, if a school decides to implement the program for just one semester, it is invalid to rely on the year-long program estimate (by, for example, dividing the year-long program impact estimate in half) and matching this (erroneous year-long) estimate to the cost of implementing the program for just one semester. It is important to acknowledge that in the process of continuous improvement, program providers may evolve and alter their program model and program delivery to meet the needs of new educational settings. Further, it is perfectly reasonable for effective programs to evolve to be even more effective. However, we urge program providers to test the efficacy of their evolved program models in the context of a new RCT to determine whether changes to the program lead to different program effects (or at least do not erode the prior program impact) and whether any changes in the magnitude of program impact are commensurate with the cost savings associated with the new program model.

and costing out the relevant inputs necessary to implement a program or intervention. Insight into a program's cost not only supports program planning and implementation, but also enables calculation of a variety of cost-related metrics. Our primary goal in this report is to support the identification and collection of valid programmatic cost data to calculate and compare the cost-effectiveness of different tutoring programs.

Program planning and implementation

Understanding the resources required to implement a program is essential to sustain, scale, and improve program delivery over time. Collecting detailed cost data can inform the way programs conduct research and development, fundraise, enter new geographies, and price themselves for districts. Detailed cost data can provide insight to program leaders by identifying which program improvements could impact both the quality and feasibility of their services. For providers with multiple program models, understanding the sources of variability in cost can inform efforts to most efficiently allocate resources toward maximizing program reach and impact.

Identifying how costs vary across schools, districts, and time can help programs identify how to maintain the quality of service provision as they go to scale. As programs scale, detailed cost data can be used to develop pricing scenarios in new geographic settings. It can also be used to mitigate risk by identifying the cost implications of new implementations that might fall short of anticipated demand, such as when fewer students are served than expected or labor costs are higher than anticipated.

As with all data, the extent of the insights provided by cost data relies on the quality of the data that is collected. For programs to develop accurate projections, innovate their programs, and mitigate implementation risks effectively, they must gather detailed, high quality cost data.

Cost-related analyses

In this report, we focus on collecting program cost data to calculate a program's cost-effectiveness. At the same time, the identification and collection of program cost data enables a variety of cost-related analyses. Each analysis type serves a different purpose and appeals to various stakeholders. We summarize these analytic approaches below.

Cost-feasibility. This approach aims to answer the question: "Can the program be implemented given budgetary constraints?" (Levin & McEwan, 2001). Cost-feasibility is a part of typical decision-making processes since programs that do not fit within the budget do not need to be evaluated further. Cost-feasibility can be conducted after clearly identifying the per pupil cost of the program (Fryer & Howard-Noveck, 2020) or the realistic range of costs (Guryan et al., 2023). Cost-feasibility analyses can also be used to identify how resources need to be reallocated to achieve the necessary budget to implement the program. This includes identifying the source(s) of monetary payments but also the potential need for reallocating staff to implement the program.[3]

3 Notably, if a program is not cost-feasible as originally designed and implemented (or, at minimum, envisioned), then reducing the program cost by changing some features of the original program design could mean that program might no longer work as intended and might not lead to improved outcomes.

Cost-effectiveness. This approach aims to answer the question: "How much effectiveness is achieved per the unit cost of an intervention?" For example, how much does student achievement improve with each additional $1,000 of per pupil spending.[4] This type of analysis requires an estimate of program impact from a well-designed evaluation (e.g., randomized controlled trial, or RCT) alongside valid program cost data (on a per pupil basis). Cost-effectiveness analysis is intended for use in decision-making as it provides a comparison between the return on investment of alternative uses of resources, such as different educational interventions. Cost-effectiveness calculations allow comparisons between similar programs, like two early reading programs (Hollands et al., 2016). They can also compare multiple programs that are constructed differently - variation in modality, grades covered, and dosage - but that all target the same subject (Simon, 2011). Cost-effectiveness analyses can also compare long-term outcomes across various types of educational interventions by discounting costs and impacts over a longer time horizon (Harris, 2009). More recently, cost-effectiveness approaches have been introduced which enable comparison across tutoring programs that cover different grades, require different intervention dosages, and focus on different subjects (Kohlmoos & Steinberg, 2024). Notably, cost-effectiveness analyses do not assess whether the benefits of an intervention exceed the costs (Levin & McEwan, 2001).

Cost-benefit. This approach aims to answer the question: "Do the benefits of the intervention outweigh the costs of the intervention in monetary terms?" This type of analysis requires converting an estimate of program impact from a well-designed evaluation into monetary terms and comparing those benefits to the cost of implementing the program. For example, calculating the monetary benefit of increasing high school graduation. Cost-benefit analyses are useful for assessing the worthwhileness of an intervention independent of alternatives, but can also be used for decision-making to help identify which intervention among alternatives is the most worthwhile. Cost-benefit analysis can be a valuable tool for informing policy and legislative decisions.[5] However, converting benefits to monetary terms cannot always be done rigorously or systematically (Levin & McEwan, 2001). Cost-benefit analyses can be used as a method to influence policy making and future funding by identifying the long term return for funders of investing in the program being analyzed (Clark et al., 2023).

Cost-utility. This approach aims to answer the question: "What is the cost of achieving a certain level of utility or preference?" This is commonly used in medical studies to understand whether (and to what extent) an intervention impacts life years (and the quality of life years), which tend to be measured in QALY (quality adjusted life year). When paired with valid program cost data, cost-utility can be calculated. Within education, cost-utility analyses can take the form of applying preference weights to multiple outcomes. For example, an educational intervention may increase outcomes

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4 The inverse of this cost-effectiveness metric may also be calculated to answer the question: "How much money is needed to close an achievement gap of a certain magnitude (e.g., number of months of learning)?" Note that scaling (the inverse of) the cost-effectiveness measure requires an assumption of linearity; namely, that the impact of tutoring is linear in the cost of tutoring (and thus in the amount of tutoring dosage that can be purchased at a given per pupil cost of tutoring). For example, if a program that costs $1,000 per pupil for 20 hours of tutoring can improve student learning by 1 month, then the assumption of linearity is required to assume that twice the dosage - 40 hours - at twice the per pupil price - $2,000 - can close an achievement gap of twice the magnitude, or two months of learning.

5 For example, the Washington State Institute for Public Policy, under legislative direction, employs a three-step process to evaluate what works and what does not in achieving targeted policy outcomes.

across four dimensions (e.g., decoding, reading comprehension, student self efficacy, and joy of reading); by applying weights to each outcome based on the preference of a selected stakeholder group (e.g., parents or teachers), an overall utility can be calculated. While cost-utility analysis is less common in education, there is some exploration of how it could be used to better take into account the multiple factors that practitioners consider when selecting programs (Hollands et al., 2019). The potential variance in preference weights has been described as a limitation (Levin & McEwan, 2001)

These analytic approaches and corresponding cost-related metrics provide necessary information to policymakers and school leaders, particularly in resource-constrained environments where human capital (time) and funding (money) are finite resources, to identify and invest in educational interventions. Our focus in this report is on the role of program cost data in constructing estimates of cost-effectiveness, following on Accelerate's introduction of a measure of cost-effectiveness that estimates the return on educational investment in terms of additional months of student learning (Kohlmoos & Steinberg, 2024). We next turn to efforts that have already been made to collect and calculate program cost, providing guidance on how to fully account for the inputs necessary to implement a program and the costs associated with those inputs.

Part 3

Background on Calculating Program Costs

There is a long tradition in the economics of education on approaches for calculating the cost of programs and interventions. Among them, the Ingredients Method provides the most rigorous approach (Levin, 1975; Levin, 1988) and has been identified by the Institute of Education Sciences (IES) as the recommended approach to calculate program costs (IES, 2020).

Yet despite guidance from organizations such as IES, program cost estimates are often absent from evaluations of educational interventions. A survey of education evaluation conferences in the 1980s indicated that fewer than 1 percent of presentations addressed program cost (Levin, 2001). While the frequency with which program evaluations have incorporated program cost estimates has increased over time - from 17% of 541 evaluations (Clune, 2002; Simon, 2011) to 30% of 103 evaluations (Ross et al., 2007) - estimates of a program's cost continue to lag alongside estimates of program impact. Indeed, among fifteen well-powered randomized controlled trials (RCT) of tutoring interventions from a recent meta-analysis of 89 tutoring programs (Nickow et al., 2024), just four provided evidence of the cost of implementing their tutoring program (Kohlmoos & Steinberg, 2024).

The relative dearth of program cost estimates among educational interventions is surprising, given that resources have long been available to calculate program costs and conduct cost-related analyses. Several factors may explain the limited availability of program cost estimates: lack of training; low demand; and few programs with consistently positive effects (Levin, 2001). In addition to these factors, educational stakeholders - funding agencies, educational decisionmakers,

researchers, and/or program providers themselves - have likely placed greater value on producing evidence of program impact than evidence of program cost. Further, program cost and associated analyses are often challenging to interpret and compare across (and even within) programs due to variation in the rigor, completeness, and methods used to calculate cost-related metrics. And finally, as Levin (2001) suggests, program providers may wish to remain opaque about their program costs. Indeed, one aim of this report (and the associated cost tool) is to inject greater transparency into the education market about program cost (and cost-effectiveness).

As noted, a dearth of resources, tools and prior knowledge should not be a rationale for the lack of program cost estimates. Extensive resources are available to calculate program costs and conduct cost-related analyses. These include standards (AIR Standards), modules (CAPP), tools (CAPP and Center for Benefit-Cost Studies of Education), and a toolkit (IES). The AIR Standards were developed by a panel of experts in economic evaluation of educational and social programs for the purpose of improving the quality of information available to school leaders and decision-makers. The Cost Analysis in Practice Project (CAPP) created online modules and associated tools to help put the standards into practice. IES created a step by step guide with an associated tool to encourage its grantees to engage in rigorous cost analyses. All of these resources are focused on using the Ingredients Method to identify and calculate program costs, and they each have a stated goal of increasing the availability and use of high quality cost estimates in practice.

In addition to these resources, forecasting tools such as NSSA's Cost Calculator 2.0 and Tennessee SCORE's Instructional Coherence Toolkit (p.16-18) support program planning and implementation. These tools provide guidance to estimate total program costs based on a finite and predetermined set of program ingredients (or inputs). For example, NSSA's Cost Calculator allows users to select from three levels of operating costs (low cost=$500; moderate cost=$1,000; or high cost=$2,000); NSSA's calculator defines operating costs as inclusive of all program costs except tutor salaries. Forecasting tools such as these generate less fine-grained estimates of program costs, both because of a delimited set of inputs as well as a focus on plans for future implementations rather than descriptions of past implementations.

Prospective approaches are valuable for designing and budgeting new programs but are inherently prone to omitting costs that may be challenging to predict and itemize prior to program implementation. Forecasting tools typically prioritize efficiency and ease-of-use by restricting inputs and automating calculations. In contrast, retrospective analyses typically prioritize accuracy and comprehensiveness. The cost tool that we introduce in this report enables both forecasting - to support program planning - and retrospective analysis - to support cost-related analyses, and accomplishes both by leveraging the Ingredients Method to identify and cost out all of a program's inputs.

The Ingredients Method

The Ingredients Method involves three phases: (1) identifying program ingredients; (2) pricing the ingredients; and (3) calculating and applying the estimate of program cost (Levin, 2001). The Ingredients Method is designed to capture all inputs and resources necessary to implement a

program. This includes both monetary costs, such as the cost of paying tutors for a tutoring program, as well as hidden (or opportunity) costs, such as the cost associated with the time a principal spends setting up a program in their school.[6] Comprehensively collecting all inputs and associated costs, whether they are present in the budget or not, is why IES considers the Ingredients Method the most credible method for conducting a cost analysis.

Define Program Ingredients

Program ingredients are identified through close review of evaluations, program documentation, financial documents, marketing materials, proposals, stakeholder interviews, and direct observation of the program. Using all available sources allows costs from all perspectives to be identified, including the perspective of society as a whole, the perspective of a school, and any other payers (e.g., funders, volunteers, or parents). The total program cost is referred to as the cost to society because it encompasses all resources required to implement a program—regardless of who pays and even if resources are provided in-kind (IES, 2020). The cost to school accounts for both monetary costs paid by the school to implement a program as well as any hidden (opportunity) costs, such as staff time and facilities. Identifying and selecting the cost perspective is a key design decision for conducting cost analysis, which we address in greater detail later in this report.

Financial documents (e.g., budgets or expenditure reports) are an intuitive starting point for conducting cost analysis. Yet, they may provide only a partial accounting of all the resources necessary to fully implement an educational intervention such as tutoring. For example, an evaluation of New York City's tutoring program relied on detailed expenditure reports that included costs associated with tutor pay, regional tutoring coordinators, personnel training, background checks for tutors, fees for tutoring curriculum development, and books (Fryer & Howard-Noveck, 2020). This analysis of expenditure reports showed that the program had a total cost over three years of $5,284,750, with an average of 715 students served per year, yielding a cost per student of $2,462 (Fryer & Howard-Noveck, 2020). However, without the use of resources beyond financial documents, such as interviews of school-based staff, it is unknown if there were other costs associated with program implementation that were not included in the financial documents and thus excluded from the total per pupil cost of the program. For example, an evaluation of the Accelerated Reader program found that the time required for a librarian to unshelve and reshelve books as part of the program accumulated over the school year and was a notable time expense over the course of the program's implementation (834 hours in the school year, including some up front set up costs). Even though the librarian is unlikely to be included in the Accelerated Reader program budget (Simon, 2011), the 834 hours represents an opportunity cost that must be accounted for to fully cost out this particular intervention. This example is not an outlier. A prior cost analysis of three school-based programs found that the program's total per pupil cost based on the Ingredients Method was consistently higher than the per pupil cost based solely on budget expenditures: $2,000 higher for Reading Recovery (44% higher); $63 higher for Restorative Practices (124% higher); and $61.50 higher for a school nurse program (51% higher) (Hollands et al., 2024).

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6 Describing and quantifying hidden (or opportunity) costs provides information on, for example, the level of effort required of a school or district to implement a program, which can inform district procurement decisions.

Thus, failing to account for hidden costs may limit the ability to implement programs. A relatively low budgetary price that does not account for hidden costs associated with facilities usage or staff time can prevent a promising intervention from being implemented at all. These hidden costs highlight why a cost analysis must extend beyond financial documents to identify all resources - both explicit and hidden - that are necessary for program implementation.

Price the Ingredients

The Ingredients Method enables the quantification and pricing of a program's ingredients by first identifying the complete set of a program's inputs, both explicit and hidden (via opportunity costs). There are several ways to price ingredients. Ingredients can be priced based on the actual prices of the inputs during the implementation. Ingredients can be priced based on average prices in the locality where the implementation took place. Ingredients can be priced based on the average prices nationally. Local and national prices provide opportunities for comparison to actual program costs and allows for greater comparability across programs.

Another facet of pricing ingredients is identifying who is bearing the cost of each ingredient. Identifying who pays, and whether there are costs to the school that are not included in the fee schools pay for program services, increases transparency for decision-makers. In some cases, there can be substantial differences between the total costs of all the ingredients (the cost to society) and the costs borne by particular parties like schools (cost to school). The use of volunteers is a good example of a cost that is borne by society, because volunteer time is valuable and could be put to other uses (i.e., opportunity costs associated with volunteer time), but does not show up on any budget. For example, in an evaluation of Reading Partners, costs are shown by perspective - cost to society ($3,610 per pupil) and cost to school ($710 per pupil) (Jacob et al., 2016). The difference between cost to society and cost to school include program costs that are borne by Reading Partners ($1,110 per pupil), Americorps ($270 per pupil) and the volunteers themselves ($1,520 per pupil). From the perspective of the school, the breakdown in costs is very favorable. The school is receiving an intervention worth $3,610 for a cost of $710 (the fee the school pays plus the in-kind donation in time and facilities). If cost-effectiveness were calculated for Reading Partners, the cost-effectiveness from the perspective of the school would be far superior to the cost-effectiveness from the perspective of society because the cost is much lower. It is important to note that while subsidies to schools - from volunteers, Americorps and program providers such as Reading Partners themselves - keep the cost to school relatively low, these in-kind transfers do not lower the cost to society. Finding ways to distribute costs away from schools does not inherently make a program cheaper, except from the perspective of the school.

Calculate and Apply the Cost Estimate

After identifying and pricing the ingredients it is then possible to calculate and apply the cost estimate. Totalling the costs and dividing by the number of students served yields the cost per pupil.[7] At minimum, the total per pupil cost provides transparency for providers and decision-makers for

7 Defining what counts as a student served is an important design decision that impacts cost per pupil. Accelerate defines a student served as any student who attended at least one session of the intervention.

the purposes of cross-program comparisons and pricing. At this stage, the collection of program cost data can now be leveraged to support program planning and implementation, and enable the calculation of cost-related measures, such as cost-effectiveness. Later in this report, we present and describe the metrics that are included as automated outputs in Accelerate's cost tool.

Mitigating Barriers to Rigorous Cost Estimation

One of the primary barriers to implementing the Ingredients Method is the time and effort required to fully identify and cost out all inputs to educational interventions (IES, 2020). Gathering detailed ingredient information and applying a set of prices to those ingredients can be time consuming, especially when pricing both nationally and locally, or attempting to cost out multiple program models. With the focus of researchers and decision-makers falling heavily on whether an intervention works at all, it is understandable that engaging in a rigorous cost analysis is sometimes not seen as worthwhile.

Existing forecasting tools provide insight into ways to mitigate barriers to calculating rigorous cost estimates. Tools such as the NSSA Cost Calculator 2.0 aim to reduce the effort required to conduct a cost analysis by restricting the number of inputs required to calculate a program's cost. Their purpose as a forward looking planning tool emphasizes a quick and easy-to-use design, while de-emphasizing the level of precision required by the Ingredients Method. For example, the NSSA Cost Calculator 2.0 estimates the cost of any program based on just eight inputs. It asks users to input key information including tutor type, tutor pay information, count of students served, group size, tutor caseload and the dosage of the tutoring that students receive. It also includes three levels of operating costs (high, medium, and low) that encompass training, curricular materials and tutor supervision. All of these inputs are combined to calculate a total per pupil cost. Tennessee SCORE's Instructional Coherence Toolkit (p.16-18) estimates the cost of a tutoring program with 18 inputs focused on the personnel costs associated with tutoring. Through prior work SCORE identified that personnel costs, including factors such as tutor type (e.g., lead teacher, assistant teacher, volunteer), how much capacity tutors have, frequency of sessions, group size, and total students served, were the largest cost drivers of tutoring programs. To minimize the effort required to create a cost estimate, they chose to ignore other ingredients. Forecasting tools are useful for program designers to estimate future costs in an effort to remain cost-feasible. They are also useful in making the impact of different design decisions visible.

Forecasting tools have clear drawbacks to conducting a comprehensive cost analysis. The actual cost of an implementation could vary widely depending on context and geography. If a program has inputs that are excluded from the underlying assumptions of the forecasting tool, those inputs (and their associated costs) will be ignored. Forecasting tools also ignore potential variability in costs associated with different perspectives (i.e., cost to society versus cost to school). Nonetheless, forecasting tools offer important considerations for addressing some of the constraints implicit in the Ingredients Method, including: (i) automating calculations, such as calculating local prices based on the geography selected by the user; (ii) reducing the effort required to price non-personnel ingredients by including standardized prices for classrooms, computer labs and meeting rooms

rather than asking users to source and amortize building costs; and (iii) incorporating opportunities for users to develop planning scenarios, such as by varying specific input prices (e.g., the cost of tutors) to arrive at a range of program costs.

There is no way to avoid the time and effort required to comprehensively identify and price all the inputs necessary to implement a program. However, the effort can be reduced through automating and standardizing aspects of the costing out process.

Part 4

Accelerate's Guide to Calculating Program Costs

In this section we describe Accelerate's cost tool, which standardizes the process to calculate program costs of any tutoring program model.[8] We recommend that users open the cost tool by clicking on the link and then following along with this guide when using the tool.[9] Accelerate created this tool to be used by researchers and tutoring program providers. The insights generated through the tool will be valuable to multiple stakeholders, including policymakers and school and district leaders.

Purpose

The tool can be used both retrospectively and prospectively. Retrospectively, the tool can describe past or current program implementation(s), providing actionable insights to providers and researchers on the actual costs of the program. Retrospective cost analysis can also support the calculation of cost-related metrics such as cost-effectiveness by pairing the program cost estimate with a contemporaneous impact estimate generated from the same program implementation setting. Prospectively, the tool can provide program planning insights by constructing cost estimates for future implementations, such as in new school/district settings or through the introduction of new program models.

By standardizing important aspects of the costing out process, the cost tool refines and improves the comparability of program cost estimates across (and within) programs, which also improves trust in the reported findings (Shand & Bowden, 2022). For example, following Shand & Bowden (2022),

8 For organizations with multiple program models (e.g., an in-person model and a virtual model), a cost analysis should be conducted for each implementation of a program model to account for potential differences in resource requirements across models (and across implementation settings, such as in a specific school/district setting). To calculate cost-effectiveness, a cost analysis of a given model in a specific implementation setting should be paired with a program impact estimate (based on a rigorous causal research design, such as an RCT) from an evaluation of that implementation of a specific model. As with impact evaluations, it is recommended that cost analyses are replicated for the same program implemented in different school/district settings to generate more generalizable evidence of program cost (and cost-effectiveness).

9 This link will take readers to Accelerate's cost tool. When the link opens, click the "make a copy" button. Making a copy will create a non-public version of the tool. The copy will be stored in your computer's local drive. This copy will only become available to others if it is proactively shared by the user. Downloading the tool to Excel may cause the tool to lose functionality.

the cost tool standardizes the hourly price of facilities and automatically populates the national and local prices of ingredients that are common inputs to tutoring programs (e.g., cost of tutors). Standardized assumptions also reduce the effort required to collect data for the analysis, addressing one of the barriers to conducting a rigorous analysis of program costs (Shand & Bowden, 2022).

The initial version of the cost tool (version 1.0) is focused on costing out tutoring interventions. The tool can be adapted to apply to other educational interventions. While a more generalized version of the cost tool may be released in the future, Accelerate will continue to revise and update version 1.0 of the cost tool over time. We will revise the use and usability of this current version of the cost tool with feedback provided by program providers and researchers, and will make updated versions available on Accelerate's website. We welcome feedback from users to improve future iterations of the cost tool.

Ultimately, our aim is for the cost tool to be incorporated into existing and future grantmaking requirements for program providers and applied research and evaluation studies of those providers. In doing so, this work aims to address the relative dearth of valid program cost estimates available to users of the cost tool (program providers and researchers) and consumers (educational decisionmakers and school/district leaders) of the cost-related information that the cost tool produces.

Overview

The Ingredients Method provides a valuable framework for conducting a rigorous cost analysis. When applying the Ingredients Method there are numerous decisions that need to be made, and those conducting the analysis can make different choices for completely justifiable reasons. These choices range from decisions that define the scope of the analysis (e.g., selecting the perspective to adopt when conducting the cost analysis) to more technical decisions (e.g., applying an hourly cost for use of a school's classroom). Accelerate has standardized some of the key design decisions within the Ingredients Method in order to clarify and streamline the costing out process and improve comparability across program cost estimates (see Appendix A for glossary of key terms; see Appendix B for key tool design decisions).

Accelerate's cost tool follows the structure and process of the Ingredients Method by: (i) identifying implementation details; (ii) defining program ingredients (i.e., inputs); (iii) pricing ingredients; and (iv) creating and using the cost estimate. Identifying implementation details (Phase 1) focuses on which pieces of information about an implementation are relevant for calculating program costs and associated cost-related metrics, and the recommended practices for pairing cost estimates with impact estimates for cost-effectiveness calculations. Defining the ingredients (Phase 2) describes how ingredients will be categorized and the importance of using multiple sources to identify ingredients. Pricing the ingredients (Phase 3) describes many of the technical decisions built into the tool, including how prices for common ingredients are auto-populated, when to price facilities, and how to identify perspective. Finally, creating and using the cost estimate (Phase 4) outlines the various outputs of the cost analysis tool, including a summary of costs, cost-related metrics (e.g., cost-effectiveness, cost-efficiency), and the planning scenarios that are included in the tool.

Phase 1: Implementation Details

The Implementation Details tab collects basic information about the program being analyzed. An implementation defines the specific setting in which a cost analysis is conducted. Some of the data collected will be used to calculate cost and cost-related metrics, while other data are contextual. The information entered into the tool should be based on the particular implementation for which the cost analysis is being conducted. In this context, an implementation is characterized by: (i) a clearly delineated number of schools using the same program model; (ii) a specific count of students (across those schools) receiving services; and (iii) a finite duration of the program (i.e., a specified timeframe for the provision of services). Notably, the cost analysis can include multiple schools (or even districts); must focus on a particular program model even if multiple models are used in the same district or region (e.g., a math program and a reading program); and must focus on what actually occurred during implementation rather than what was planned to have happened or what is thought to typically happen.[10]

Section 1: Program Information

Implementation details will be collected for the specific program model. Implementation details include: (i) implementation location; (ii) grades covered; (iii) count of students served; (iv) intended dosage; (v) whether tutors receive benefits (in addition to salary/wages); and (vi) the cost (per pupil) paid by the school for the program. The cost tool contains user notes that are visible when hovering the mouse over the field name; user notes indicate whether specific implementation details (e.g., students served) are incorporated into automated calculations (e.g., per pupil costs).

Certain program implementation details are necessary to calculate program cost and cost-related metrics. For example, Total Program Dosage is a program design characteristic included in the calculation of tutoring efficiency and cost efficiency, which is in turn used to calculate cost-effectiveness (Kohlmoos & Steinberg, 2024). These details include:

- **Implementation Location** includes both metropolitan areas and non-metropolitan areas (n=532 total unique areas) with available wage data collected by the Bureau of Labor Statistics (BLS OEWS, 2023). Location will be used to populate local prices during the pricing phase of the analysis. If the implementation being analyzed extends across multiple geographic regions then local pricing may not be relevant.
- **Students Served** should represent actual students served by the program implementation (for retrospective analyses) or the count of students to be served (for prospective analyses). The count of students served should include students who received at least one session in the program during the year. Students who received at least one session were successfully enrolled in the program even if a student did not receive the full amount of intended tutoring

10 Focusing on one model at a time allows for cost comparisons between program models. It also ensures that a cost estimate of that specific program model is paired with an impact estimate of the same program model from the same implementation setting to calculate cost-effectiveness. For example, pairing an impact estimate from an in-person model with a cost estimate from a virtual model to calculate cost-effectiveness will not yield a valid estimate of cost-effectiveness because the costs and the impacts of the in-person and virtual models are likely different due to, for example, variation in program design, differences across implementation settings, and/or heterogeneity in the impact of different program models.

dosage. This is a standard that may be applied to any tutoring program regardless of intended dosage and the timing of selecting students for participation. Standardizing the definition of students served in a way that is widely applicable is of the utmost importance as this will have implications for calculating cost per pupil.[11] If the tool is being used for prospective planning purposes rather than as a retrospective description of a prior implementation, then we recommend using the intended number of students to be served or seats available.

- **Total Program Dosage** is automatically calculated as the product of: (i) minutes per session; (ii) number of sessions per week; and (iii) weeks of program duration. For a specific program implementation, there may be variation in program dosage due to scheduling idiosyncrasies (for example, across school sites). In these cases, input the most typical dosage. If there are large differences in dosage between sites in the same implementation (e.g., different numbers of sessions per week; more than a two week difference in duration), then it may be necessary to treat these differences as different program models.

- **Tutor Benefits** indicates whether tutors receive benefits. If tutors receive benefits, benefits will be included in the price of tutors in the pricing phase. The standardized prices based on national and local averages for all school-based roles (e.g., teachers) automatically include benefits.[12]

Other fields in the Program Information section provide context about the program being analyzed. These other fields are not used to calculate cost or cost-related metrics. For example, Tutor Type provides a multiple choice field for categorizing the primary type of tutor used in the program, but a more nuanced description of who the tutors are and whether there are multiple types can be included in the Define and Price Ingredients phase.

Section 2: Price Charged to School

The per pupil price charged to schools is used to determine the cost to school.

- Input the per pupil price charged to the school as the fee charged to schools for implementing the program model. Programs that do not charge schools on a per pupil basis should calculate the per pupil price charged for the implementation being analyzed.

In the Define and Price Ingredients phase, ingredients that are necessary to implement the program but not included in the price charged to schools will be identified. Any additional costs borne by the school that are not included in the per pupil price charged to schools (e.g., hidden costs) are added to the price charged to the school by the provider to calculate the cost to school.

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11 A more expansive definition of students served would reduce the cost per pupil (and likely dilute the impact if the analysis is occurring concurrently), while a stricter definition, such as requiring a level of adequate dosage unique to each program model, will increase the cost per pupil.

12 Benefits are assumed to be 50% of salaries based on Employer Costs for Employee Compensation data from the Bureau of Labor Statistics. This means benefits are 33% of total compensation when benefits are included.

Section 3: Impact Evaluation

To calculate cost-effectiveness, an impact estimate must be paired with a cost estimate. Impact estimates used to calculate cost-effectiveness should meet the same criteria outlined in Accelerate's May 2024 report, including: (i) RCTs or other similarly rigorous quasi-experimental designs;[13] (ii) at least 350 students in the study sample; (iii) conducted in a U.S. K-12 setting; (iv) using measures from assessments of academic performance that are in widespread use (e.g. state assessments, or nationally normed assessments such as NWEA MAP); (v) an Intent-to-Treat (ITT) estimate of program impact; and (vi) are contemporaneous to the year in which the tutoring occurred (Kohlmoos & Steinberg, 2024). The impact estimate, grades served, subject served, and dosage (from the Program Information section) are used to calculate tutoring efficiency and cost-effectiveness (Kohlmoos & Steinberg, 2024).

When considering which impact estimate to include, It is important to consider the three primary applications of Accelerate's cost tool:

1. Conduct a contemporaneous cost analysis as part of an impact evaluation: Input the impact estimate from a well-designed RCT (or rigorous quasi-experimental design) that generates a causal estimate of program impact. This is the most rigorous form of calculating cost-effectiveness because both the impact estimate and program cost estimate are derived from the same program implementation.

2. Conduct a retrospective cost analysis of a program that was previously evaluated:[14] Input the impact estimate from the prior evaluation that was based on a well-designed RCT (or rigorous quasi-experimental design) that generates a causal estimate of program impact. The retrospective cost analysis should be based on the same program model and same implementation setting from which the prior impact estimate was generated.[15]

3. Conduct a cost analysis without calculating cost-effectiveness: Rigorously analyzing costs has many benefits independent of calculating cost-effectiveness. Leave the impact estimate field blank if the purpose of the analysis does not include cost-effectiveness (e.g., prospective program planning).

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13 Randomized controlled trials (RCTs) are the gold standard for producing causal estimates of program impact, and should be the primary research method employed in program evaluations to generate valid average treatment effects of tutoring (and other educational) interventions. An RCT may not always be feasible to implement. As such, strong quasi-experimental methods such as a regression discontinuity (RD) design may be employed in the calculation of a program's cost-effectiveness. Whereas RCT and RD research designs can generate causal estimates of program impact, the application of non-experimental methods such as propensity score matching or pre-post comparisons produce correlational estimates and thus are not appropriate for calculating rigorous and comparable cost-effectiveness metrics.

14 If there is more than one impact estimate on student achievement that is available for a specific model (e.g., multiple implementations of the same model in different settings), it is useful to assess cost-effectiveness using each impact estimate separately. Looking at the cost-effectiveness of multiple impact estimates provides a range of likely cost-effectiveness for future implementations. Once the cost analysis has been completed, it is straightforward to update the impact estimate (which is only one input in the tool) and compare cost-effectiveness estimates.

15 It is not recommended to conduct a cost analysis of a program model today and match it to an impact estimate from a past evaluation because the evolution of the program over time may have altered both the impact of the program and the cost of the program. In cases where there is mismatch between setting or timing of the cost analysis and impact estimate, this approach may provide a helpful approximation of cost-effectiveness but it does not result in a valid estimate of a program's cost-effectiveness.

In order to make meaningful comparisons across and within programs the underlying methods used to estimate impact and cost need to be consistent. Otherwise comparisons may be hard to interpret or misleading. For example, an attempt to make long-term cross-intervention comparisons of cost-effectiveness relied on tutoring research that used a non-experimental research design and identified an impact estimate of 0.90 SD (Harris, 2009), significantly greater in magnitude than more recent meta-analytic estimates of tutoring impact from rigorous causal (i.e., experimental) research designs (Nickow et al., 2024; Kraft et al., 2024).

Section 4: Scenario Planning Parameters

This section of the cost tool informs prospective program planning. The scenario planning enables consideration of a range of potential costs for future implementations across three cost (per pupil) types: (i) total cost; (ii) tutor cost; and (iii) training and support cost.

- The user may choose the percentages to input for scenario planning. Lower percentages will yield narrower ranges; higher percentages will yield wider ranges. For example, inputting 20% for "Tutor Cost Per Pupil" will result in the tutor cost per pupil being multiplied by 1.2 (high price) and 0.8 (low price).
- Results can be found in the Outputs - Cost Planning Scenarios tab.

If prospective program planning is not a focus of a given cost analysis, then this section may be left blank.

The user can explore additional planning scenarios by varying other inputs to program implementation. For example, by adjusting program details it is possible to observe what would happen to cost-effectiveness if the caseload of students was increased while holding constant all other cost drivers, or if the impact estimate was higher or lower. By changing the geographic location in which tutoring is implemented, it is possible to observe potential variability in costs (and cost-effectiveness) if the program were implemented in higher or lower cost geographic locations. By changing the unit price of tutors it is possible to see the impact of using a different tutor type. These adjustments give users of the tool an opportunity to refine and compare program costs in different implementation settings, or to identify the potential impact on cost of changes to their program design. It can also help program providers calculate the potential impact of any cost reduction efforts they are introducing into their program model. A cost reduction effort that does not result in a notable decrease in total cost may not be worth pursuing.

Phase 2: Identify and Define Ingredients

This next phase - Identify and Define Ingredients - collects the cost drivers (i.e., ingredients) required for program implementation (see Define and Price Ingredients tab). Accelerate's cost tool defines the following five ingredient (input) categories: (i) Personnel: Delivery and Operations; (ii) Training and Support; (iii) Equipment and Materials: Delivery and Operations; (iv) Facilities: Delivery and Operations; and (v) Other: Delivery and Operations.

Each ingredient category, which can be viewed in the Define and Price Ingredients tab in the cost tool, contain standardized ingredients that are common to tutoring programs. There are also common roles that are often hidden, such as IT Support required to implement virtual tutoring programs and school-based teachers who often coordinate with tutors during the school day.[16]

The cost tool also provides for the inclusion of inputs that are not already identified (and are labeled as 'other' in the Define and Price Ingredients tab), enabling flexibility to identify the full set of inputs for all programs. These may include less common ingredients such as parental involvement, the purchase of unique technology, or transportation. The cost tool enables users to include the full set of program inputs necessary to fully cost out program implementation, including both standardized (e.g., tutors) and more hidden (i.e., less common) ingredients. Accelerate's cost tool focuses on the cost of replicating the implementation, and therefore does not include development or overhead costs that are not specific to the implementation (Hollands et al., 2016).[17] It is not necessary to identify and describe overhead or development costs as part of the analysis.

Users should rely on multiple sources to identify and describe program ingredients, including:

- **Program Materials** such as implementation guides, expenditure reports and prior evaluations;
- **Key Stakeholders**, including school-based staff, are valuable resources for generating a cost estimate of a tutoring program that occurs within a school by making hidden costs visible. For example, a teacher may be uniquely aware of the planning time required to collaborate with a tutor, or a school leader may have unique insight into the coordination efforts required to implement the program in the school. The Cost Analysis in Practice Project (CAPP) has an interview protocol that can be modified for use as needed.
- **Directly Observing the Program** to identify any ingredients that were not captured by other sources is valuable, when possible. Direct observation is often not possible when a cost analysis is done retrospectively, but can be included when the analysis is done concurrently with an impact evaluation that includes data collection on program implementation (e.g., school-based observations).

Ingredient Categories

In the Define and Price Ingredients tab, users should describe each of the ingredients in the Description column. The description should include information about each ingredient (e.g., who the personnel are, how much time they spend engaged in implementation activities, and the quantities necessary to implement the program). Ingredient descriptions will provide guidance to the user on pricing each ingredient. For example, describing an ingredient such as tutors should include

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16 Identifying hidden ingredients that may be less visible becomes increasingly important as tech-enabled, virtual, and AI-driven tutoring programs become more widely adopted. The resource requirements necessary to implement a virtual program, for example, such as in-school personnel responsible for supervising students receiving virtual tutoring, are important ingredients necessary to fully cost out program implementation.

17 For example, curriculum development for the program model being analyzed would not be included. If there is some customization of the curriculum for each implementation, the cost of that customization should be included.

information about the tutor type (e.g., paraprofessional), the count of tutors involved in program implementation, and the number of hours each tutor is involved in program implementation. The more detailed the ingredient descriptions, the more straightforward it will be to price the ingredients.

Personnel: Delivery and Operations. This ingredient category describes who is involved in the delivery and operations of the program. This category typically constitutes the largest share of the costs of any educational intervention. It is also the category that is more likely to include hidden costs, such as school-based personnel necessary to support program implementation. This category does not include the personnel time required to train and support those who deliver the program (e.g., personnel time dedicated to training, coaching, observing, and/or providing feedback).

- **Tutors.** Describe the time tutors use to deliver tutoring or prepare for and follow up from tutoring. Time required for tutor training and coaching should be included in the Training and Support Category. Multiple line items are available to describe different tutor types if the program model employs multiple types of tutors.
- **Site Lead or Coordinator.** Describe the time site leads dedicate to supporting program implementation. This may include activities such as scheduling meetings, enrolling students in the program, and general troubleshooting. Site leads may be school-based staff, provider staff, and/or there may be leads from both the school and the provider. If more than one role acts as a site lead and/or coordinator, use the "other personnel" lines for the additional roles.
- **Teachers.** Describe any meetings, data collection or data reporting that teachers engage in related to tutoring, even if teachers are not directly involved in the delivery of tutoring.
- **Principal/School Leadership.** Describe any meetings, program set-up or program coordination principals engage in related to tutoring, even if principals or other school leaders are not directly involved in the delivery of tutoring.
- **HR Personnel/Tutor Hiring.** Describe the HR and hiring costs associated with the tutors needed for the particular implementation being analyzed. This may require an estimate of the time and effort required to hire and onboard tutors on a per tutor basis.
- **IT.** Describe any technical support required to set up, maintain and troubleshoot technology for the particular implementation being analyzed.
- **Other Personnel.** Describe any additional staff time that was not included in the prior line items. This may include roles that were not listed, such as family coordinators, or instances when multiple types of personnel fulfill the same role (e.g., school-based IT support and provider-based IT support).

Training and Support. This ingredient category describes all of the costs involved in the training and support functions of the program. This includes personnel involved in training and support. The Ingredients Method typically does not separate out training and support. However, by including a separate category for training and support, it is possible to separate out these costs and clarify the distribution of resources between delivery and operations versus training and support.

- **Tutor Coaches/Supervisors/Trainers.** Describe the personnel who are responsible for training tutors, or provide ongoing coaching and supervision to tutors. If more than one role is involved, use the "Other Training and Support Costs" lines for the additional roles.
- **Tutors.** Describe the time tutors spend in training or coaching sessions. Include both up-front training time for tutors as well as ongoing coaching and support.
- **Training and Support Facilities.** Describe any facilities usage, such as renting a space for training, required for training and support.
- **Training and Support Materials.** Describe any materials, such as handouts or manipulatives for training sessions, required for training and support.
- **Training and Support Travel Reimbursements.** Describe any travel costs for training sessions or for coaches to meet tutors.
- **Other Training and Support Costs.** Describe any additional ingredients required for training and support that were not previously captured.

Equipment and Materials: Delivery and Operations. This ingredient category describes the technology, curricular materials, and/or subscriptions to technology platforms necessary to implement a program. It is common for resources to be used by tutoring programs that were already available (e.g., computers are available for students to use in the classroom). Even in these cases, we recommend that the ingredient should be identified, described, and priced to account for opportunity cost.

- **School Supplies and Manipulatives.** Describe any school supplies or manipulatives, such as math manipulatives or individual white boards, necessary to implement the program.
- **Curricular Materials.** Describe the curricular materials students use during tutoring. This may include printing costs or purchasing curricula.
- **Software and Subscriptions.** Describe any tutoring software or platform subscriptions necessary for students to engage in tutoring.
- **Technology.** Describe any technology used during program implementation, such as time spent by students on the computer, even when the technology already exists within the school. The use of computers represents an opportunity cost that must be incorporated into total program costs.
- **Other Materials and Equipment.** Describe any additional materials and equipment necessary for the implementation of the program.

Facilities: Delivery and Operations. This ingredient category describes any facilities necessary to implement the program. If a program requires space to operate beyond the classroom where students are already learning, there are opportunity costs associated with using that space that

should be accounted for. Afterschool programs should also describe their facilities usage as the use of that space could be otherwise taken up by another after school use, a renter, or by closing the school earlier.

- **Classrooms.** Describe any classrooms that are used in part or exclusively for the program. If classroom usage is exclusively within the classroom where students are already learning, note that.
- **Computer Labs.** Describe the use of computer labs that are used in part or exclusively for the program.
- **Meeting Rooms.** Describe any meeting room usage that occurs as part of the program. This may include recurring meetings between teachers and tutors, or coordination and data meetings between site coordinators and school leadership.
- **Other Facilities.** Describe any other facilities necessary for the implementation of the program.

Other: Delivery and Operations. This ingredient category describes costs not included in the prior ingredient categories.

- **HR Processing.** Describe any non-personnel related HR processing costs such as fingerprinting or background checks.
- **Travel Reimbursements.** Describe any travel costs that are not related to training and support. This may include mileage reimbursements for tutors or other travel.
- **Incentives.** Describe any incentives for students that are included in the program. This may include end-of-year parties for participation, food, or prizes.
- **Other.** Describe any additional ingredients necessary to the implementation of the program that were not previously identified.

Phase 3: Price the Ingredients

After identifying and describing the ingredients, it is time to price the ingredients in the Define and Price Ingredients tab. Pricing the ingredients involves a five-step process: (i) identify pricing category; (ii) assign unit of measure; (iii) quantify the ingredients; (iv) assign price to the ingredient; and (v) identify perspective, or who is paying for the ingredient.

Identify Pricing Category

In the Pricing Category column, there are 26 categories available to choose via a drop-down menu. If there is not a good match available, select "Other Role or Category". National and local prices will automatically populate (where available) after the Pricing Category is selected (see Appendix C for a list of ingredients and associated prices).

There are a variety of options available when selecting the pricing category for tutors. Each option will automatically generate a different price based on national and local average prices.

- If tutors are employed by the school, select the school-based role most similar to the role occupied by tutors (e.g., paraprofessionals focused on tutoring are similar to the Bureau of Labor Statistics categorization of "Assistant Teacher").
- Tutors who are hired and paid by the program should be labeled as "Tutor (hourly)" or "Tutor (salary)" depending on how they are paid. This will provide appropriate national and local comparisons to the actual amount paid to tutors to deliver the program.[18]
- Peer tutors, college students, and volunteers are also included as potential tutor types, each with their own associated prices.

Non-personnel ingredients with corresponding pricing categories include computers, computer labs, classrooms, and meeting rooms. Choosing the appropriate Pricing Category for these ingredients is necessary to ensure that the correct standardized hourly prices are automatically populated in the pricing tool.

Assign Unit of Measure

A unit of measure must be assigned to each ingredient before the ingredient is quantified. There are four units of measure included in the tool: FTEs (full-time equivalents); hours; quantities; and fixed costs. We describe each below.

- **FTEs.** Quantifying FTEs answers the question: "How many full-time equivalent staff members make up this ingredient?" FTEs should be used as the unit of measurement when full-time staff are involved in the tutoring program. This unit of quantification should be used when the price of the ingredient is a salary.
- **Hours.** Quantifying hours answers the question: "How many hours of this ingredient is necessary to implement the program?" Hours should be used as the unit of measure for units that are priced hourly, including: tutors paid hourly; computer time; and facilities time.
- **Quantities.** Quantifying with quantities answers the question: "How many of this ingredient is necessary to implement the program?" Use quantities when there is a set number of units that must be purchased, such as for curricular materials; manipulative sets; and platform subscriptions.
- **Fixed Costs.** Quantifying with fixed costs answers the question: "how much was this one-time cost?" Fixed costs should be used as the unit of measure when the quantity is simply one, such as for renting a space for training and/or purchasing a school license for a platform.

Quantify Ingredients

After the selection of the unit of measure, input the quantity of the ingredient. For fixed costs the quantity will always be one. For quantities, it will be the number of units purchased (e.g., the number

18 Benefits will be added to the base hourly rate or base salary based on whether it was indicated that tutors were paid benefits in the Implementation Details tab.

of curricular materials purchased will likely match the number of students served). Quantifying FTEs and hourly ingredients is often more complex, which we detail below.

Quantifying FTEs:

- **Multiple FTEs.** When multiple staff work on the program, sum the FTEs for the particular ingredient. For example, if five tutors work on the program and 80% of their time is dedicated to program delivery and 20% is dedicated to training and support, then the tutor FTE total for program delivery would be 4 FTEs (5 tutors x 0.8); the tutor FTE total for training and support would be 1 FTE (5 tutors x 0.2).
- **Fractional FTEs.** Many personnel involved in implementing a program spend a fraction of their time working on the program. In such cases, users should input fractions of an FTE. For example, if a teacher is involved in a regular meeting with a tutor, their time should be accounted for. Teachers may spend 3% of their time engaging with tutors. If there are three teachers involved in this level of work, then that would equate to 0.09 FTEs (3 teachers x 0.03) of teacher time. Estimation can be used to identify the correct fraction to input. For example, if a site lead works at three sites it is acceptable to estimate how much time the site lead spends at each site by dividing the site lead's time equally across their caseload. This would result in 0.33 FTEs per site (1 FTE/3 schools = 0.33 FTEs per school). If the site lead is only working at one school that is included in the cost analysis, 0.33 would be input for the site lead's quantity. An alternative method of estimation is to calculate the share of annual work hours dedicated to working on the program. Shand and Bowden (2022) recommend using 1195 hours as the annual work hours for school-year staff and 1894 hours for year-round staff. For example, if a teacher spends 36 hours involved with the program, it would result in 0.03 FTEs (36 hours/1195 hours).

Quantifying Hours:

- **Tutors Paid Hourly.** The quantity of hours listed under Personnel - Delivery and Operations would be the total number of hours all tutors were tutoring and preparing for tutoring. The total hours receiving tutor training and/or engaging in coaching conversations with their supervisor would be quantified in the Training and Support section.
- **Computer Time.** We suggest calculating computer time by multiplying total program dosage (in hours) by the count of students served for computer-based programs.
- **Facilities Time.** We suggest calculating the number of hours facilities were used based on the dosage of the program. For example a program that used the computer lab two hours a day, four days a week for twelve weeks would have a time estimate for facilities usage of 96 hours.

Assign Prices

IES recommends costing out program ingredients using both national and local prices (IES, 2020). In addition to national and local prices, we also include guidance for users to price ingredients based on the actual prices associated with program implementation.

- **National Price** is the average price nationally of an ingredient. For example, the national average salary of an elementary (grades 1-5) school teacher (including benefits) is $106,110 (Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2023). Using national prices makes program costs more directly comparable (Hollands, et al, 2016).
- **Local Price** is the average price of an ingredient in a specific locality. For example, the average salary of an elementary (grades 1-5) school teacher in Albuquerque, New Mexico (including benefits) is $95,610 (BLS, OEWS, 2023). Using local prices provides additional context for comparing whether a tutoring program was more or less expensive than similarly resourced local programs.
- **Actual Price** is the actual price of a given input associated with a specific program implementation. Using actual prices, especially for tutor compensation, provides the most accurate estimate of the cost of the program.

With Accelerate's tool, National Price and Local Price will automatically populate upon choosing the Pricing Category.[19] Local Price is based on the location selected in the Implementation Details tab. Actual Price will need to be entered for each ingredient. If there are no national or local prices available, then the National Price or Local Price will automatically match the Actual Price. Upon completion, three different cost estimates will be calculated: actual, local and national.

Several standardized prices included in the tool were priced using assumptions which we describe below:

- **Volunteers** have a standardized price, set at the average hourly wage of a tutor. This approach accounts for the value of volunteer time and assumes a replacement value of hiring a tutor at the average price (national average, for the national price, and local average for the local price). Programs using volunteers should price their volunteers using the local average price of tutors, if it is available. Using the local average price for tutors will provide the most accurate estimate of the cost of the program within the geographic area where the implementation is taking place if the volunteers had to be replaced with paid tutors.
- **Peer Tutors** use a standardized price of $0 if tutoring is done during the school day, as peer tutors are typically not compensated.
- **College Students** do not have a standardized price and their local and national prices will be populated based on the actual price.
- **Computers** have a standard rate of $0.05. Following Shand & Bowden (2022), Accelerate's cost tool relies on standardized assumptions to spread the cost of computers, the most common technology required for program implementation, across multiple years.[20]

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19 National prices and local prices were gathered for many ingredients from public sources such as the Occupational Employment and Wage Statistics from the Bureau of Labor Statistics (Bureau of Labor Statistics, Occupational Employment and Wage Statistics, 2023).

20 This assumption is based on using Chromebooks that cost approximately $200, spread across three years of use, and available for use for 1440 hours per school year (Shand & Bowden, 2022).

- **Facilities** prices are included in Accelerate's cost tool. Accelerate's tool provides standardized prices for classrooms, computer labs, and meeting rooms using the CAPP Cost of Facilities Calculator and with the assumption that facilities are available for 1440 hours per school year (Shand & Bowden, 2022).

The standardized prices for each of these ingredients should be used for the Actual Price when using the tool. This ensures that each user of the tool does not need to estimate computer costs, facilities costs, or the value of a volunteer's time for each individual implementation.

Identify Perspective

Accelerate's approach to program cost focuses on two perspectives: cost to society; and cost to school (Kohlmoos & Steinberg, 2024).

- **Cost to Society** reflects the total (per pupil) cost of the program, including any in-kind transfers (e.g., philanthropy), public subsidies (e.g., AmeriCorps volunteers and related services to support their participation), and the opportunity costs associated with, for example, volunteer time (Kohlmoos & Steinberg, 2024). The cost to society will include all the cost of all ingredients, such as tutor time (whether it is volunteer time, subsidized Americorps time, or wages paid), materials, training, school-based coordination time, and all other program inputs.
- **Cost to School** represents the per pupil fee that schools must pay to tutoring providers for services plus any hidden (i.e., opportunity) costs associated with staff time or facilities.

Identifying which ingredients are not included in the fee schools pay identifies the hidden costs associated with program implementation. In the Define and Price Ingredients tab (Column O), users can identify hidden costs by designating ingredients that are not included in the fee but are necessary for program implementation. Ingredients which are hidden costs should be labeled "yes" in Column O. For example:

- Facilities provided by the school, including classrooms and computer labs
- Technology provided by the school, including computers
- Tutors who are employed and paid by the school
- The time school leaders, teachers and/or other school staff spend supporting program implementation

Any ingredients labeled "yes" will be designated "Costs borne by school (exclusive of fee to provider)" and added to the fee paid by the school to calculate the cost to school. In Table 2 in the Outputs - Summary Costs tab, the tool automatically calculates the cost to school, which is inclusive of the fee paid by the school to the provider and the hidden costs (i.e., costs borne by the school exclusive of the fee paid to schools).

It is possible for the cost to school to be the same, more than, or less than the cost to society, based on the fee paid by a school.[21] While this may seem counterintuitive, both cost perspectives are valuable: what is the total cost of the ingredients necessary to implement a program (i.e., cost to society); and what is the cost borne by schools (in direct fees to the provider and hidden costs) to implement the program (i.e., cost to school).

Phase 4: Creating and Using Cost Estimates

The final phase of the Ingredients Method is to create and apply the cost estimate. Accelerate's cost tool automatically calculates three types of summative outputs: Summary Costs; Cost Metrics; and Cost Planning Scenarios.

Summary Costs

Summary program costs can be found in the Outputs - Summary Costs tab. In Table 1 (and Figure 1), we present total (per pupil) costs and per pupil costs associated with each of the five ingredient categories (along with the share of total cost attributable to each ingredient category). In Table 2, we present costs by perspective - cost to society and cost to school (which is inclusive of the direct fees paid to the provider and any costs borne by the school that are exclusive of the direct fee to the provider (i.e., hidden costs)). In Figure 2, we present costs associated with tutors versus costs associated with all non-tutor inputs. All costs are shown by actual, national, and local pricing.

Cost-Related Metrics

Following Kohlmoos & Steinberg (2024), the cost tool presents the following three cost-related metrics in the Outputs - Cost Metrics tab: tutoring efficiency; cost efficiency; and cost-effectiveness.

- **Tutoring Efficiency** is defined as the number of hours of tutoring necessary to improve student learning by one month. Tutoring efficiency does not rely on program cost.
- **Cost Efficiency** is defined as the number of hours of a program (e.g., tutoring) a student receives per $1000 per pupil.[22] This measure compares the cost of programs that might, for example, vary by dosage. However it does not take into account program quality, because it is only describing the quantity of tutoring purchased per $1000 per pupil, not the impact on student learning of the time spent in tutoring.
- **Cost-Effectiveness** is calculated using tutoring efficiency and cost efficiency. Cost-effectiveness is defined as the additional months of learning gained by investing $1,000 per pupil (or, the amount of student learning a school can purchase for $1,000 per pupil).

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21 For example, schools that implemented Reading Partners paid $710 for a program model with a total cost to society of $3610 (Jacob, 2016). Alternatively, a program could charge a school a fee of $2500 per pupil when the program's cost to society is $2000. This may occur because the additional $500 may reflect program costs associated with overhead and research and development, which represent explicit costs to providers that providers might include in the fees charged to schools.

22 For cost efficiency, we rely on the intended dosage (i.e., scheduled hours) of tutoring rather than the actual dosage of tutoring that a student receives (Kohlmoos and Steinberg, 2024).

Table 3 summarizes the results for each of these three cost-related metrics. For the cost efficiency and cost-effectiveness metrics, results are shown with actual, national, and local pricing. Actual pricing provides the most precise match between the cost of implementing the program and the impact achieved by the program. However, actual pricing may be less comparable and generalizable if there are idiosyncrasies related to program implementation that drives costs up or down, such as a unique tutor pool that received higher or lower than typical wages. National and local pricing allows the cost estimate that relies on actual prices to be compared to meaningful benchmarks, providing insight into whether (and the extent to which) the actual price is more or less expensive than would be expected. In some cases national and local pricing may be more generalizable to future implementations in other geographic locations.

Scenario Planning

Accelerate's cost tool includes three scenarios to support prospective program planning: (i) varying the total (per pupil) cost; (ii) varying the cost (per pupil) of tutors; and (iii) varying the cost (per pupil) of training and support. Program costs associated with different ranges of total, tutor, and training and support costs can be found in the Outputs - Cost Planning Scenarios tab.

Table 4 shows the range of prices - low price, actual price, and high price - associated with each of the three planning scenarios. All cost scenarios are shown by actual, national, and local pricing.

Part 5

Summary and Looking Ahead

The aim of this report and accompanying cost tool is to support the generation of valid and comparable cost estimates of educational interventions and programs, of which tutoring is one intervention type. Currently, the educational market for tutoring programs is characterized by the limited (and asymmetric) availability of program cost data. School leaders and other educational decisionmakers know far less about the cost (and cost-effectiveness) of tutoring interventions than do program providers. At the same time, program providers themselves have limited insight into not only the cost of tutoring services provided by comparable service providers, but also the hidden (i.e., opportunity) costs borne by schools that are necessary to support program implementation. This information asymmetry limits the efficient allocation of educational resources toward those interventions most able to improve student learning (at the lowest cost). Indeed, in a post-pandemic climate marked by sustained declines in student achievement and with the cessation of federal fiscal stimulus, "Is it worth it?" must be the focus of policymakers and school leaders when considering which educational interventions to support with increasingly limited educational budgets.

Thus, this report and accompanying cost tool aim to address this market failure by injecting greater transparency around program cost into the educational market for tutoring. Greater insight into program cost is essential for understanding the return on an educational intervention or program,

such as a program's cost-effectiveness. The availability of program cost data and associated cost-related metrics provide critical information to inform stakeholders - including both users of the cost tool (such as program providers and researchers) and those who would consume the information produced by the cost tool (such as school and district leaders) - on a program's return on educational resources invested. For program providers, the cost tool further enables detailed program planning to lend insight into the potential variability in program costs associated with program implementation in different school settings. Doing so supports efforts by program providers to most efficiently and effectively allocate their resources toward programs most able to improve student learning.

And yet, the availability of a cost tool is insufficient in and of itself to address the lack of information on program cost and this resultant market failure. In order to empower education decisionmakers and program providers with more useful information to inform resource allocation, the market requires more than just a cost tool. It requires that the tool be used, and the resulting cost estimates be paired with rigorous evidence on program impact.

To support these goals, we propose the following applications of the cost tool and policy recommendations associated with cost-related information:

1. Accelerate and other sponsors of applied research should require programs and interventions to conduct program-specific cost analysis as part of their grant oversight process.
2. Researchers should include estimates of program cost alongside estimates of program impact as part of a complete program evaluation.
3. School and district leaders should require cost-effectiveness estimates based on high quality impact evaluations and transparent cost analyses in their procurement decision-making.
4. State policymakers should require evidence on program costs from vendors applying to state-approved vendor lists.
5. Program providers should engage in ongoing cost analysis of their programs and interventions to support continuous improvement.

Taken together, the application of this cost tool alongside the use of cost-related information generated by this tool should improve the identification of program models that efficiently and effectively improve student learning. Doing so is necessary to not just reduce existing information asymmetries in the tutoring market, but most critically, to support decision-making among policymakers and educational leaders who are allocating scarce educational resources to improve student learning.

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Appendix A: Glossary of Terms

Actual Price - The amount spent on ingredients during a specific implementation of a program.

Cost to School - Represents the per pupil fee that schools must pay to tutoring providers for services, plus any hidden (i.e., opportunity) costs associated with staff time or facilities.

Cost to Society - The total per pupil cost of all inputs to an educational intervention regardless of who is paying, even if resources are provided in-kind.

Equipment and Materials - Delivery and Operations - An ingredient category that includes all equipment and materials necessary to implement the program excluding training and support. This includes tangible materials, technology and software or platform subscriptions.

Facilities - Delivery and Operations - An ingredient category that includes all facilities necessary to implement the program excluding those required for training and support. This includes classrooms and computer labs.

Implementation - The enactment of a program that is characterized by (i) a clearly delineated number of schools using the same program model; (ii) a specific count of students (across those schools) receiving services; and (iii) a finite duration of the program (i.e., a specified timeframe for the provision of services).

Ingredient - An input associated with implementing an educational program or intervention.

In-kind donation or transfer - A non-monetary contribution such as volunteer time, staff time or facilities.

Local Price - The average cost of an ingredient in a particular location.

National price - The average cost of an ingredient nationwide.

Opportunity cost - The value of resources, such as time, money, or effort, that could have been used for alternative purposes had they not been used for the intervention being analyzed.

Other - Delivery and Operations - An ingredient category that includes any ingredients that do not fit within other ingredient categories.

Perspective - The cost of a program which depends on who is paying.

Personnel - Delivery and Operations - An ingredient category that encompasses personnel necessary to implement the program excluding training and support for tutors.

Program Model - a structured framework that details the specific program design features (e.g., tutor type, modality, student-tutor ratio) required to implement the program.

Randomized Controlled Trial - A research design that randomly assigns students into a treatment or control group for the purposes of producing causal estimates of program impact.

Training and Support - An ingredient category that includes all costs associated with training and support activities for tutors. This includes up front training and ongoing coaching. It includes the time of both the tutors and those supporting them.

Appendix B: Key Design Decisions

This appendix outlines the key design decisions made within the standardized cost analysis approach and tool introduced in this report. These decisions were made to ensure consistency, transparency, and comparability across different cost analyses. The design choices listed align with, although are not identical to, best practices recommended by organizations such as the Institute of Education Sciences (IES), the Cost Analysis in Practice Project (CAPP), and cost analysis scholars.

Decision	Description	Phase
Defining the Scope of the Cost Analysis	The analysis should be conducted based on an implementation in a single school, multiple schools, a district, or multiple districts provided all are using the same program model.	Phase 1
Definition of Students Served	Any student who attended at least one session should be included in the cost per pupil calculation.	Phase 1
Overhead/Indirect Costs	Only ingredients necessary to replicate the implementation should be included in the analysis. Indirect costs, research and development, and overhead should not be included.	Phase 2
Choosing Perspective	The analysis should include both the cost to society and the cost to school. Costs borne by the school but not covered by the fee paid by the school should be identified when pricing the ingredients.	Phase 3
Local vs National Pricing	Local, national and actual pricing should be calculated.	Phase 3
Pricing Volunteers	Volunteers should be priced using the average hourly cost of a professional tutor.	Phase 3
Cost of Classroom and Meeting Rooms Time	The cost of a classroom has been standardized at $10.20 per hour based on the CAPP Facilities Calculator for an elementary school classroom calculator and an underlying assumption of 1440 hours of available usage per year. Meeting Rooms use the same rate.	Phase 3
Cost of Computer Lab Time	The cost of computer labs has been standardized at $15.89 per hour based on the CAPP Facilities Calculator for an elementary school lab classroom and an underlying assumption of 1440 hours of available usage per year.	Phase 3
Cost of Computer Time	The cost of a classroom has been standardized at $0.05 per hour of usage based on a $200 Chromebook with a 3 year lifespan and 1440 hours of available usage during the school year. $200/3 year lifespan/1440 total available hours = $0.05.	Phase 3
Calculating Benefits	Benefits are assumed to be 50% of salaries based on Employer Costs for Employee Compensation data from the Bureau of Labor Statistics. This means benefits are 33% of total compensation when benefits are included.	Phase 3

Pricing Category	Pricing categories represent common ingredients in education interventions that are listed in the tool. When available national and local prices will autopopulate based on data from the Bureau of Labor and Statistics. There is also an "Other" category for ingredients that do not fit within any of the other pricing categories. Roles and categories are described in more detail in Appendix C.	Phase 3

Appendix C: Ingredients and Associated Prices

Ingredient	Ingredient Category	Price (Salary Including Benefits)[23]	Price (Salary Excluding Benefits)	Source
Tutor (hourly)	Personnel - Delivery and Operations; Training and Support	$35	$23	BLS OEWS 2023
Tutor (salary)	Personnel - Delivery and Operations; Training and Support	$72,870	$48,580	BLS OEWS 2023
Assistant Teacher	Personnel - Delivery and Operations; Training and Support	$54,645	$36,430	BLS OEWS 2023
Assistant Teacher (hourly)	Personnel - Delivery and Operations; Training and Support	$45.73	$30	Calculated using Assistant Teacher annual salary ($36,430) divided by hours in school year (1195 - low end estimate by Shand). Assistant teacher hourly wage is not directly provided by BLS
Volunteer (hourly)	Personnel - Delivery and Operations; Training and Support	$23.36		Assume the national average tutor hourly wage of 23.36 is the replacement cost of a volunteer tutor.
College Students	Personnel - Delivery and Operations; Training and Support	Will Use Actual		

23 Benefits are assumed to be 50% of salaries based on Employer Costs for Employee Compensation data from the Bureau of Labor Statistics. This means benefits are 33% of total compensation when benefits are included.

Peer Tutor (during school)	Personnel - Delivery and Operations; Training and Support	$0		
K Teacher	Personnel - Delivery and Operations	$101,685	$67,790	BLS OEWS 2023
1-5 Teacher	Personnel - Delivery and Operations	$106,110	$70,740	BLS OEWS 2023
6-8 Teacher	Personnel - Delivery and Operations	$107,190	$71,460	BLS OEWS 2023
9-12 Teacher	Personnel - Delivery and Operations	$110,700	$73,800	BLS OEWS 2023
Special Education Teacher or Interventionist K-5	Personnel - Delivery and Operations; Training and Support	$107,655	$71,770	BLS OEWS 2023
Special Education Teacher or Interventionist 6-8	Personnel - Delivery and Operations; Training and Support	$110,445	$73,630	BLS OEWS 2023
Special Education Teacher or Interventionist 9-12	Personnel - Delivery and Operations; Training and Support	$112,005	$74,670	BLS OEWS 2023
Principal	Personnel - Delivery and Operations	$166,530	$111,020	BLS OEWS 2023
Assistant Principal	Personnel - Delivery and Operations	Will Use Actual		No designation for Assistant Principal found in BLS data.

Instructional Coach	Personnel - Delivery and Operations	$115,800	$77,200	BLS OEWS 2023 mean salary for instructional coordinators. Includes educational consultants and specialists, and instructional material directors.
Librarian or Media Specialist	Personnel - Delivery and Operations	$102,855		BLS OEWS 2023
Substitute Teachers (hourly)	Training and Support	$21	$21	BLS OEWS 2023
IT or Operations Support	Personnel - Delivery and Operations	Will Use Actual		Large variations in who occupies this role prevents the use of a standardized price.
External Site Coordinator	Personnel - Delivery and Operations	Will Use Actual		Large variations in who occupies this role prevents the use of a standardized price.
Classroom (hourly)	Facilities	$10.20		Via CAPP facilities pricing calculator using elementary classroom as facility type and 1440 hours of available use
Computer Lab (hourly)	Facilities	$15.89		Via CAPP facilities pricing calculator using elementary laboratory classroom as facility type and 1440 hours of available use
Meeting Rooms (hourly)	Facilities	$10.20		Uses Classroom rate

Computers (hourly)	Equipment and Materials	$0.05		$200 Chromebook on Amazon, 66.67 per year for three years, divided by 1440 hours in a school year (low end estimate by Shand for facilities and technology availability)
Other Role or Category		Will Use Actual		Not applicable