# *Leveraging Findings on the Cost of Positive Behavioral Interventions and Supports to Inform Decision Making by Leaders in Special Education Programming*

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- **The field of special education has become increasingly interested in and concerned about the costs associated with delivering programs and services to students. Yet, to date, there has been relatively limited data on the costs or return on investment of special education services and preventive interventions.**
- **There is an opportunity to learn from other areas of education about the costs and benefits of programming related to students with disabilities. One such line of cost-related work that has emerged over the past few years has focused on Positive Behavioral Interventions and Supports (PBIS).**
- **This paper reviews the process of conducting a cost analysis alongside findings from a series of recent PBIS-related research on costs and benefits, including the return on investment associated with PBIS.**
- **Research suggests that the benefits of PBIS outweigh the costs, signaling a positive return on investment.**
- **Current research evidence shows that the largest benefits of PBIS come from improvements in academics, suggesting the value of interventions that support student behavior, which may be maximized for students with special educational needs.**

**Key words: Cost Analysis, Positive Behavioral Interventions and Supports, Cost-Benefit Analysis.**

## Estimating the Cost of Positive Behavioral Interventions and Supports

The issue of cost and economic analysis is not a new topic for special education leaders, as there are considerable costs associated with providing special education services, which comprise a relatively large portion of district and state education budgets. Such costs facilitate a full spectrum of supports and services, including identification, professional learning, and direct service delivery. Given the sizable budgets needed to provide these types of intervention services and the growing number of students in need of those supports, it is not surprising that the field of special education has become increasingly interested in and concerned about the cost of programs and services for students (Barrett et al., 2020). Yet there has been relatively limited data on the return on investment in special education services (Lloyd et al., 2019). One type of school-based preventative programming that has been the focus of economic analysis is Positive Behavioral Interventions and Supports (PBIS; Sugai & Horner, 2006). Given the significance of PBIS and related prevention programming for the field of special education (Bradshaw et al., 2010; Horner et al., 2010; Lee & Gage, 2020; Lloyd et al., 2019), this line of work has the potential to inform our broader understanding of how findings related to costs and benefits may influence decisions by special education

leaders regarding the return on investment associated with school-based preventive programming (Barrett et al., 2020).

Although a complete review of the PBIS framework is beyond the scope of the current paper, it can be described in brief as a multitiered system of supports for behavior (Goodman & Peshak George, 2020). It often includes programming to address behavioral as well as social–emotional and school climate outcomes. These supports are organized across three tiers. Specifically, at Tier 1, or universal prevention, programming is provided to all students to be both preventive and proactive. Tiers 2 and 3 are typically layered onto the universal Tier 1 supports to benefit small groups or individuals, respectively, with more intensive and specialized needs. Tier 3 behavioral supports are not synonymous with special education as they are typically more preventive in nature. Through schoolwide PBIS, students who receive special education services have access to Tier 1 supports, and some have access to Tier 2 and/or 3 supports matched to the students' specific identified need, as well as the intensity (Goodman & Peshak George, 2020). At the most basic level, students in PBIS schools are taught prosocial behaviors, the environment is arranged to encourage these behaviors, and educators are supported to implement PBIS practices schoolwide and with fidelity (Goodman & Peshak George, 2020). An overarching goal of the PBIS framework is to improve the social and behavioral context for learning and enhance school climate, thereby reducing risk for engaging in problem behaviors and increasing access to Tier 2 and 3 resources for students with the greatest need.

Students with disabilities benefit from effective implementation of PBIS in multiple ways. We know that a majority of students with disabilities spend 80% or more of their time in the general education setting (U.S. Department of Education, National Center for Education Statistics, 2019). Safe and welcoming learning environments help students with disabilities become more ready to attend to the demands of learning. Disruptive behavior interferes with access to instruction for the student engaging in the behavior and for others in the same instructional setting. Implementation of schoolwide positive behavior support leads to increased time on task (Algozzine & Algozzine, 2007). Often, difficulties in academics and behavior may coexist for students with more significant challenges (Berry Kuchle et al., 2015), resulting in the necessity to address both concerns simultaneously. There are clear benefits of PBIS to students with disabilities, such as the increased access to more intensive services, exposure to preventive interventions to reduce escalation of symptoms, benefits associated with an enhanced school climate, and fewer distracting problem behaviors by peers. Additionally, there are policy and procedural considerations associated with providing behavior support for students receiving special education (Kern & George, 2020; Kern & Yell, 2020). These may include implications for addressing behavior in an individualized education program from rulings such as the *Endrew F. v. Douglas County School District* U.S. Supreme Court decision or a need to address behavior within a free appropriate public education as specified through the Individuals with Disabilities Education Act.

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The purpose of this paper is to review research on the costs and benefits of PBIS and discuss implications for special education leaders, in terms of both the value of economic analysis as well as potential cost savings of prevention programming. Specifically, the first aim of this paper is to summarize the process for conducting a cost analysis. As such, we begin this review with an overview of some of the fundamental terms and concepts in economic analysis, including various aspects of the process for conducting a cost analysis. The second aim of this review is to highlight how the principles of cost analysis have been applied to PBIS in recent studies (Bradshaw, Debnam, et al., 2020; Bradshaw, Lindstrom Johnson, et al., 2020; Lindstrom Johnson, et al., 2020; Pas et al., 2020). In doing so, we highlight the costs of various elements of the PBIS model and show how these are distributed across stakeholders at the school, district, and state levels. We review both direct and induced costs associated with supporting high-quality implementation with a particular emphasis on the use of coaching. Finally, we contextualize these findings in relation to the economic value of the outcomes achieved using shadow pricing. We consider the potential return on investment associated with PBIS in relation to a range of outcomes related to behavior and academics.

Because PBIS is an integral part of the landscape in which special education and general education operate, we believe it is an important model to consider in the context of its relative costs and benefits. It is our overarching goal to provide helpful insights to guide practice and budget-related decisions for special education leaders.

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## Fundamentals of Cost in Relation to School-based Programming

A harsh reality for special education leaders is that there is never enough funding to cover all the types of programs and services necessary to address the educational needs of students with disabilities (Lloyd et al., 2019). As such, difficult decisions need to be made on how best to prioritize the limited funding available and cover the essential services. When it comes to the issue of cost, many educational leaders naturally consider their budget line allocation to measure the dollar value of the supports provided per pupil. Unfortunately, the true costs of programs and services may be considerably greater than the line item on a budget. For example, most human service sector programs involve substantial staff effort that often accounts for the largest portion of overall costs. Additionally, it can be difficult to split costs of shared personnel across different programs. Finally, some costs do not appear on budgets, including volunteers, donations, or in-kind services.

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When one begins to conduct an economic evaluation, there are a number of factors to consider and some steps to follow. Moreover, there are several different types of economic evaluation that could be performed, including cost–feasibility, cost-effectiveness, and cost–benefit analyses (Levin et al., 2018). For this paper, we focus on cost–benefit analysis of PBIS. As with all economic evaluations, performing a cost–benefit analysis requires starting with a cost analysis, which includes calculating the dollar value of the comprehensive set of resources allocated to deliver a program or service and, as such, provides an accurate measure of its associated costs. Best practices support the use of the ingredients method, which leverages standard cost-accounting practices and the economic concept of opportunity cost, which is defined as " …the value of what is sacrificed by using a specific resource in one way rather than in its best alternative use" (Levin & Belfield, 2015, p. 403). Using an ingredients-based approach, one can map out the costs corresponding to those resources that are used to implement a program. A fidelity measure can be used to operationalize the core components, quantify the use of resources, and map resource use to costs as was done by Bradshaw, Debnam, Player, Bowden, and Lindstrom Johnson (2020). The process of mapping resources onto activities also allows for thoughtful consideration of the factors that need to be in place to ensure program sustainability (McIntosh et al., 2009). In fact, the benefits of the program may not be fully realized if the program is not implemented correctly and consistently over time. Additionally, the process of assessing program fidelity can be leveraged to track costs of the various core components of a program or the program's ingredients. For example, when assessing for the occurrence of program meetings, it is possible to determine who was present as well as meeting dates and times and use this information to calculate personnel costs for program meetings.

Although there is value in conducting a cost analysis for one point in time, many programs and services are implemented over time across multiple school years. PBIS is one type of service delivery framework that requires a sustained investment in programming, training, and technical support, which often takes 3 to 5 years to reach high implementation fidelity or consistently achieve the intended outcomes (Bradshaw et al., 2009). Program implementation over longer periods can complicate the accurate calculation of economic cost as costs associated with upfront purchases of resources that are used over multiple years need to be amortized over the periods in which they remain useful. Additionally, because

money spent today is worth less than money spent in the future, cost estimates should be adjusted to take this into consideration (i.e., discount rate). Taking into consideration the time and length of exposure to interventions also relates to the benefits side of the equation as changes in youth outcomes may take time to appear, may be greater with cumulative exposure, and may fade after the program or service ends (i.e., decay rate, ratchet effect; Belfield et al., 2015). Cost analyses for PBIS should account for such issues.

Although it is beneficial to understand the "true" costs of an intervention to ensure adequate support for fidelity implementation and sustainability, comparing program costs with the outcomes that are generated—cost-effectiveness analysis—allows one to gauge efficiency and improve decision making. A cost–benefit analysis further monetizes the outcomes produced by the program or service and compares this benefit with its cost. Importantly, the objective is not to compare different programs focused on a specific outcome as is the case in cost-effectiveness analysis, but to understand the monetary benefits stemming from a variety of outcomes associated with a specific program or service. For example, if Program A reduced suspensions and improved academic achievement, the monetary value of these two outcomes could be identified and added together to understand the total monetary benefit of the program. This type of analysis can be helpful when programs generate different types of outcomes as is common in school-based prevention programming. With regard to the process of conducting a cost–benefit analysis in educational interventions, one needs to estimate both the costs associated with the program inputs or ingredients and the benefits associated with the outcomes that have been achieved.

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## Process of Mapping and Estimating Benefits

The benefits-mapping process can help elucidate the process or pathway by which the intervention can impact an outcome. Benefit mapping is strategically identifying the probable outcomes of the intervention as well as the mechanism through which the outcomes were achieved. It is helpful to identify effects that can be valued. Such effects may include the more obvious outcomes, such as academic achievement, but other outcomes, such as mental health, social–emotional functioning, and overall well-being, have also been monetized (Belfield et al., 2015). Unfortunately, in educational and human services interventions, we know that, if a student is not regularly exposed to a program or participates in a program with limited fidelity, there will likely be a reduction in the benefits experienced.

Some benefits may be more immediately realized. For example, by reducing office discipline referrals, an administrator can buy back time or reduce the amount of time spent on discipline, thereby saving personnel time from having to process those referrals as well as student time away from learning (Scott & Barrett, 2004). More long-term benefits might come from outcomes that have a direct value for students or staff (Belfield et al., 2015). For example, some of the most prominent outcomes for students include increased high school completion, reduced involvement with juvenile justice, and reduced need for special education services. Other indirect program or service effects may induce substantial savings in a number of ways. For example, if the program improved school climate, as PBIS has been shown to do (Bradshaw et al., 2009), this, in turn, also leads to improved teacher retention and reduced staff turnover; this could help the school save the costs of recruiting and onboarding new teachers. Additional benefits and ultimate cost savings of improved school climate could accrue through the implementation of programs and supports at the more advanced tiers (e.g., Barrett et al., 2013; Bradshaw et al., 2014).

It is often the case that Tier 2 and 3 supports are much more costly than Tier 1; therefore, investment in strong universal prevention and early intervention may be more efficient than intensive individualized supports as it reduces the number of students who need supports at Tiers 2 and 3 (Lindstrom Johnson et al., 2020). Additionally, schools with better climate (i.e., improved through the delivery of Tier 1

supports) are often able to implement programs with higher fidelity, including supports at Tiers 2 and 3 (Bradshaw et al., 2009). Additional benefits may result should the training of staff in one area generalize or carry over to another area. For example, PBIS training for staff on how to do data-based decision making using behavioral data and team-based problem solving might transfer to educators' use of other types of academic data for problem solving or at least reduce the amount of training required when the concepts are similar and supported through the school or district.

One can leverage existing literature to enumerate and monetize different types of outcomes and add them up to generate an estimate of monetary benefits. Shadow pricing is the act of determining prices for goods or services for which there is no market. In other words, a shadow price is the amount of resource someone is willing to pay to obtain an outcome, such as a high school degree, or reduce a certain outcome, such as a suspension event. Best practice suggests that these estimates be adjusted for the time-value of money as well as considerations about length of exposure to the program. Finally, an important consideration when pricing benefits is to avoid double-counting benefits. Benefits should only be counted based on the unique pathways toward outcomes. For example, if a program or service improves various measures of academic achievement through student engagement, we would not want to count both the academic achievement for math as well as reading.

Many educational programs are considered induced service models whereby the activities actually create more costs. As an illustration, a program that includes screening to identify student needs generates additional costs by ideally increasing the number of students identified to receive services. These types of service or program delivery models, which are also referred to as "service mediation interventions" (Bowden et al., 2017), are an indication of the importance of considering both costs in relation to more immediate benefits as well as long-term benefits in decision making.

# Studies of the Cost and Cost–Benefit of PBIS

In the following section, we provide some examples of cost analysis and cost–benefit analysis for the PBIS model. Specifically, we refer to four different cost studies of the PBIS model that focus on issues related to implementation as well as outcomes of the model (Bradshaw, Debnam, et al., 2020; Bradshaw, Lindstrom Johnson, et al., 2020; Lindstrom Johnson et al., 2020; Pas et al., 2020).

## Assessing the Costs of PBIS Using the Ingredients Method (Bradshaw, Debnam, et al., 2020)

This study applies the ingredients method (Levin et al., 2018), which is a helpful approach for pricing out the specific elements, core components, or "ingredients" of a program or framework as is the case for PBIS. The authors follow the core steps in the process of conducting an ingredients-focused analysis: 1) identification of the core ingredients, 2) collection of data and information on each of the ingredients, 3) quantifying and pricing those ingredients, 4) estimating the total and average costs associated with each of the ingredients, and 5) pairing costs with impacts or benefits (Levin & Belfield, 2015; Levin et al., 2018). Bradshaw, Debnam, et al. (2020) focus on the first four steps, whereas the final fifth step is the focus of a subsequent study (Bradshaw, Lindstrom Johnson, et al., 2020). Toward that end, the authors of the first study draw upon multiple sources of data from 77 elementary and secondary PBIS schools with the goal of estimating the total cost of implementing the model. Costs are divided across meeting, training, management and implementation, coaching, PBIS incentive activities, and the time dedicated to writing referrals. The two primary drivers of cost are training and management and implementation, accounting for 80% of costs. The authors conclude that the average per school cost of implementing the framework at Tier 1 is $53,216 (median = $36,698) with an average per pupil cost of $90 (median = $58) in 2018 dollars. The findings also indicate that the cost does vary as a function of implementation fidelity such that schools implementing the PBIS model with high fidelity tend to incur more costs relative to those with low fidelity implementation. This study serves as a good illustration of the utility and potential efficiency of tracking costs of a school-based program within the context of a mixed-methods approach to the collection of fidelity data.

## Documenting the Costs of Coaching to Support PBIS Implementation (Pas et al., 2020)

Given the importance of tracking and optimizing implementation fidelity using coaching supports at the classroom (Pas et al., 2014) and system levels (March et al., 2016), it is helpful to consider the extent to which personnel costs related to coaching—in terms of both delivering it and for schools to receive it—should be captured in a cost analysis of PBIS or other school-based program. This study by Pas et al. (2020) leverages data from a 40-school randomized controlled trial of PBIS, which used the multitiered framework to implement other evidence-based programs (e.g., mental health, social–emotional learning, substance use prevention) within the tiered PBIS framework. The implementation support coaches were external to the school system and completed an activity log to track their contacts and activities in the schools in support of optimizing PBIS implementation.

Using these coaching log data, Pas et al. (2020) estimate the annual per-school costs of delivering coaching to be $8,198 on average in 2018 dollars. Moreover, the cost of personnel from the school to engage in the coaching process is estimated to be $3,028 on average annually. Coach-rated administrator buy-in, school engagement in the tiered framework, and implementation infrastructure and capacity are also found to be associated with coaching activities and, in turn, highlight the importance of school contextual factors in relation to uptake of coaching supports. These factors also likely translate into increased benefits with regard to the outcomes achieved, but potentially also increased costs for staff time.

## Distribution of Costs Across Schools, Districts, and State Agencies (Lindstrom Johnson et al., 2020)

Accounting for coaching costs also highlights the need to consider implementation costs at multiple levels, including the district and state. Such an approach is especially important for systems change frameworks such as PBIS. As such, it is critical to consider the costs of PBIS borne by different stakeholders. For example, the initial PBIS training and coaching efforts are often funded by districts and/or states (Horner et al., 2012). A critical function of state-level PBIS teams is to provide ongoing technical assistance to local school systems and serve as a resource for district efforts for program sustainability (Bradshaw et al., 2014; McIntosh et al., 2009). Yet few studies map the investments in PBIS or other tiered models across multiple levels, and the extent of these activities and the associated cost for each organizational structure is not well understood.

To address this gap, Lindstrom Johnson et al. (2020) use the ingredients-based costing approach to assess how the costs of different elements of PBIS are distributed across the school, district, and state levels. The total annual cost of all PBIS operations in the state participating in this project was $37.2 million in 2018 dollars. This estimate assumes an average of 50 schools per district, further assuming a total of 636 students per PBIS school. The total annual PBIS cost per student is estimated to be $48.67. The majority of the "per-student" cost is borne by the school (i.e., $42.99) with the other agencies providing a smaller per-student amount but serving larger numbers of students. Total and per-student cost estimates are subject to change based on changes to program inputs. For example, a 5% increase in the number of schools per district (i.e., across all districts) is associated with an increase in the total cost from $37.2 million to $38.9 million. Coaching time but not overhead, training, and staff costs for the regional technical assistance are associated with variability in the cost of PBIS.

## Economic Benefits of PBIS (Bradshaw, Lindstrom Johnson, et al., 2020)

Finally, we consider the costs of PBIS Tier 1 implementation relative to the benefits realized, using a shadow pricing approach. In this paper, the authors examine findings on PBIS from two studies in the state of Maryland to estimate the cost savings associated with the outcomes achieved. One of the studies reports findings from a 37-elementary school randomized controlled trial of Tier 1 PBIS, which indicates impacts on student behavior and social–emotional functioning (Bradshaw et al., 2012). The second study summarized is quasi-experimental and focuses on the statewide scale-up of Tier 1 PBIS in elementary and secondary schools across a total of 1,316 schools (879 elementary and 427 secondary schools). Using a benefits-mapping process, the authors map the possible

benefits of the intervention across delinquency, mental health, and academic achievement. Taken together, the findings suggest that, for both elementary and secondary schools, PBIS results in lower suspension rates and improvements in reading and math standardized test scores. In addition, elementary schools show reductions in bullying as well as aggressive and disruptive behavior.

Applying these findings using a shadow pricing approach, the authors conclude that cost savings exist across delinquency, mental health, and academic achievement measured as the amount per 100 students expressed in 2019 dollars. The largest cost savings was associated with improvements in standardized test scores; specifically, they find that schools on average saved $138,658 for every 100 elementary students exposed to PBIS compared with $71,444 saved for every 100 secondary students exposed to PBIS. Reductions in elementary students' aggressive and disruptive behavior and bullying were also associated with considerable cost savings (i.e., $166,028 saved for every 100 students exposed). A reduction in suspensions resulted in additional economic benefits (i.e., $33,415 saved for every 100 elementary students exposed to PBIS compared with $11,361 saved for every 100 secondary students exposed to PBIS). Similarly, they find substantial savings associated with reductions in truancy, office discipline referrals, and mental health concerns. The authors report a net total present-day cost savings value of $450,000 per 100 students exposed in elementary school compared with $86,000 for every 100 students exposed in secondary school. Taken together, these findings illustrate the broad cost savings associated with PBIS Tier 1 implementation and scale-up and suggest a solid return on investment for PBIS, particularly at the elementary school level.

## Related Findings and Relevant Implications of the PBIS Studies

We consider the findings from these four cost analyses and cost–benefit studies of PBIS in relation to a number of related implications for school-based programming. For example, implementation fidelity is an important factor to consider and could be tracked in relation to costs to gain a comprehensive picture of costs. This includes tracking costs associated with implementation across multiple levels, including student-focused supports, training and professional learning for educators and school leaders, and supports schoolwide as well as coordination and coaching supports at the district and state levels. Fidelity measures can be adapted and leveraged to collect costs, resulting in efficiency for practitioners and educational leaders. Importantly, the study by Bradshaw, Debnam, et al. (2020) suggests that high-fidelity implementation may actually cost more than low-fidelity implementation. Yet this likely translates into a higher return on investment in terms of outcomes achieved given the increased outputs associated with high- relative to low-fidelity implementation (Domitrovich & Greenberg, 2000).

Related research suggests that coaching supports can result in higher implementation quality (Pas et al., 2020). However, coaching is expensive and can represent a significant portion of the costs associated with implementation of PBIS and other evidence-based programs; this is true in terms of both the person providing the technical assistance and the opportunity costs for the staff members being coached (Pas et al., 2020). Yet investment in coaching increases the likelihood that skills developed during training are implemented in the natural settings and implemented more correctly, thus resulting in a more probable return on professional learning investments and likely contributing to a higher return on investment than when PBIS and related programming is implemented without such supports (Pas et al., 2020). Coaches and strong administrative support are critical to promoting implementation and adoption "readiness," which, in turn, helps optimize program uptake and implementation quality.

The majority of school-based program costs are attributable to personnel, which is common for these programs and service delivery models. Moreover, the bulk of the cost of school-based programming primarily resides at the school level as compared with the district or state levels (Lindstrom Johnson et al., 2020). The review of the shadow costing work on PBIS (Bradshaw, Lindstrom Johnson, et al., 2020) leverages some of the research on significant outcomes associated with PBIS. There is solid evidence that PBIS has a strong return on investment at both the elementary and secondary school levels. This is particularly true when we consider that the largest financial benefits of PBIS are associated with academic gains as compared with behavioral gains. Moreover, the benefits from PBIS accrue in other sectors besides education, such as juvenile justice and

mental health, in addition to the potential longer term benefits realized through increased engagement in the workforce and beyond.

There is solid evidence that PBIS has a strong return on investment at both the elementary and secondary school levels.

Although these findings are potentially informative, they should be considered within the context of some limitations. For example, the cost data are averaged across multiple schools; however, the individual studies did report some sensitivity analyses. There may also be differential impacts for general education students relative to special education students. As with any study, the findings may not generalize to other schools, districts, or states. Finally, readers should not conclude that implementation of PBIS will directly result in cost savings in all instances as the cost estimates are based on economic models that may not be realized for all schools under all circumstances. As such, additional research is needed to determine the generalizability of these findings across other states and different types of PBIS training, implementation, and coaching support structures. Yet the PBIS model has been expanded in recent years to include the integration of more evidence-based interventions and mental health supports; such efforts may increase the cost but may also contribute to greater benefits achieved through the multitiered system of supports framework. Another related future research question relates to exploring the extent to which higher fidelity increases costs and how long it takes before PBIS "pays back" the investment.

## Conclusions and Recommendations for Special Education Leaders

Although there is increased interest in the cost of PBIS, one might question why special education leaders specifically would be interested in conducting an economic evaluation of PBIS or other prevention-focused programming in their state, district, or school. Budgets are finite, and we are often limited in what we can do with the resources available. As such, difficult decisions need to be made on how best to prioritize the limited funding and cover essential services. Although there are often multiple programs or strategies available to meet one's educational goals, having information on the benefit–cost ratio can inform the selection of the best approach for meeting those goals in light of the available resources. The cost analysis component of such an exercise can also help us better understand what resources are truly needed to support both initial adoption and implementation as well as to sustain a program (McIntosh et al., 2009). Furthermore, with increased accountability and transparency regarding finances at all levels, there is a need for school leaders, school boards, state boards, and policymakers to be more familiar with cost concepts and language (Crowley et al., 2018; Webb, 2018).

Although there are often multiple programs or strategies available to meet one's educational goals, having information on the benefit–cost ratio can inform the selection of the best approach for meeting those goals in light of the available resources.

School-wide approaches utilizing a multitiered framework benefit all students with specific implications for students with disabilities by promoting positive, predictable, and effective learning environments. Students with disabilities benefit from multitiered supports when they have access to these practices that are matched to individual need and when the practices are implemented both correctly and consistently over time. Special education administrators need to consider how investments produce improvements for students by selecting approaches with the greatest return on investment. The administrators need to ensure that educators are adequately supported in developing skills through training and coaching. Furthermore, it is critical to invest in information systems to determine if the practices are matched to the needs of the students with disabilities and implemented with fidelity and to identify educator supports needed to improve implementation efforts. It is our hope that this line of inquiry and research

provides helpful insights to guide practice- and budget-related decisions for special education leaders and potentially leverage additional funding sources.

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**Conflict of Interest Disclosure.** There are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.
**Funding Disclosure.** The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R305H150027 to the University of Virginia. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.