SUCCESSFUL PROGRAM IMPLEMENTATION: A TOOLKIT

HANOVER RESEARCH®

SUCCESSFUL PROGRAM IMPLEMENTATION: A TOOLKIT

INTRODUCTION

When district and school leaders launch programs to support students and staff, it's critical that they have a clear process to follow to ensure the program is executed faithfully and with the highest chances of success. But it can take significant resources to not only identify a new program, but also adopt it correctly across a school or district.

Hanover Research created this resource to assist K–12 leaders to thoughtfully plan, establish, and prepare to evaluate any new programming.

This guide includes detailed steps for each of the three phases of program implementation. Following these steps consistently will ensure you achieve implementation fidelity — or integrity — any time your school or district begins a new program, ensuring programming is useful and fulfills outcomes that helps students and staff flourish.

THE BEST PROGRAM OUTCOMES OCCUR WHEN LEADERS THOUGHTFULLY FOLLOW A THREE-PHASE PROCESS:
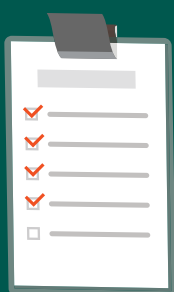
PLAN:
Identify the program needs, collect insights from all parties, build capacity, and gather resources

IMPLEMENT:
Pilot the program, expand implementation and leadership, monitor progress

SUSTAIN:
Evaluate data and provide ongoing support and training growth opportunities for those ready to step in and fill consumer needs.

Interested in learning more about program evaluation? Assess your district's readiness to conduct a program evaluation with our guide, **Step by Step Guide to K-12 Program Evaluations.**

PHASE I: PLAN

When implementing a new program, district leaders and program teams should follow these four steps:

1 Identify Needs and Solutions	**2** Gather Insights and Supports	**3** Build Capacity and Provide Professional Development	**4** Review Implementation Planning

Source: Hanover Research

STEP 1: IDENTIFY NEEDS AND SOLUTIONS

Districts must identify specific gaps by conducting a needs assessment with existing school and community data to understand and prioritize focus areas. This allows leaders to understand current challenges, weak or ineffective areas, and school climates within local contexts (e.g., linguistic considerations, cultural factors). Additionally, needs assessments and associated conversations provide opportunities to analyze data with district and community stakeholders to help ensure the program aligns with internal and external goals.

HOW TO IDENTIFY PROGRAM NEEDS

IDENTIFY
Identify program gaps in priority areas for different age groups and determine whether current programs serve specific populations.

EXAMINE
Comprehensively examine other services and interventions that already exist within the school and the community.

ANALYZE
Look into existing programs that are not meeting expectations. Inadequate results may be due to poor program fit, implementation, or fidelity.

Source: PromotePrevent, Education Development Center

PHASE I: PLAN

With needs and gaps in mind, leaders should then identify evidence-based solutions, gain input from a selection committee comprised of key stakeholders, and select the best-fit program. When researching evidence-based solutions and potential programs, districts may review registries (e.g., the National Registry of Evidence-based Programs and Practices), contact peer districts that use a similar program, or contact program developers to learn about program logic models and potential impacts on specific populations. Leaders and stakeholders must then select a program and its components while considering multiple factors such as:

- Need
- Fit
- Readiness for replication
- Capacity to implement

- Available resources
- Cost
- Strength of evidence

Source: National Center on Safe Supportive Learning

STEP 2: GATHER INSIGHTS AND SUPPORT

District leaders and program teams must fully understand their chosen program at this step. If developed outside of the district, leaders can deepen their understanding of a program and its components by speaking to program developers, districts with similar programs, and program partners and stakeholders. These groups can provide insights from experience, technical assistance and training, and community support, respectively.

It is also critical that leadership consult **stakeholders to build support and use stakeholder consultations to ensure that initiatives are aligned and cohesive.** Districts can avoid fragmentation (programs that do not align with each other or with state or federal mandates) by adopting an integrative approach that focuses on individuals' experiences within the system instead of a linear reform strategy. Integrative improvement initiatives follow three core principles to build initiatives that reflect diverse stakeholders' needs.

PRINCIPLES OF INTEGRATIVE IMPROVEMENT INITIATIVES

BUILD A SHARED UNDERSTANDING OF PURPOSE	UNDERSTAND THE VARIOUS ACTORS INVOLVED	INCORPORATE REPEATED ADJUSTMENTS BASED ON EXPERIENCE
Engage in building a shared understanding of educational goals among all stakeholders rather than assuming consensus.	Identify and engage diverse stakeholders to develop solutions that reflect the constraints and imperatives they face.	Conduct multiple iterations and trials of initiatives while seeking to understand the experiences of the individuals involved.

Source: Carnegie Corporation of New York

A proactive engagement strategy is essential for developing community support for new initiatives. This strategy should include authentic opportunities for stakeholders to provide input on policy development and communication. Ensuring collaborative stakeholder involvement in implementation helps ensure that stakeholders are aware of goals and expectations and builds a sense of ownership for new initiatives.

HOW TO ESTABLISH A COMMUNITY ENGAGEMENT PLAN

| Make engagement a priority and establish a communication infrastructure | Communicate proactively in the community | Listen to the community and respond to its feedback | Offer meaningful opportunities to participate | Turn community supporters into leaders and advocates |

Source: Reform Support Network

STEP 3: BUILD CAPACITY AND PROVIDE PROFESSIONAL DEVELOPMENT

District leaders and implementation staff must assess current capacity and resources (i.e., financial, human, physical) and address any gaps before beginning the implementation phase. Notably, for human resources, leaders must select individuals to implement the program and ensure that they have a theoretical and practical understanding of the program and their roles. District leaders should ask the following questions to guide implementation staff selection:

1. Do potential implementers have the appropriate skills and background to deliver the program?

2. How many implementers are needed to successfully deliver the program?

3. Which partners and stakeholders would be the most appropriate implementers?

4. Do implementers have an appropriate understanding of community and cultural norms within the target population?

5. Can the implementers commit to full participation in the training and professional development necessary to prepare them for implementation?

6. Are there school or community leaders whose enthusiasm for the program can bring others on board?

Once districts identify who will implement the program components, **staff and supervisors must receive adequate professional development (PD)**, which may occur through:

▸ Onsite events with external trainers

▸ Offsite events with program experts

▸ Coordinated events with other districts implementing similar programs

▸ Online training

Regardless of which training method districts use, leaders must plan how PD will continue once outside funding is exhausted.

FUNCTIONS OF PROGRAM IMPLEMENTATION PD SESSIONS

| Introduce staff to the program and practices | Foster ownership | Build in-depth program knowledge and the key elements required to ensure fidelity | Provide opportunities to practice program methods and feedback | Identify potential challenges and solutions to implementation |
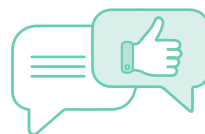
Source: PromotePrevent, Education Development Center

STEP 4: REVIEW IMPLEMENTATION PLANNING

Use the following checklist to track your implementation plans.

Track and Ensure Progress: Program Planning Checklist			
The program's outcomes match identified needs		Partners and stakeholders are aware of the programs and activities for which they are responsible for implementing	
The program complements and coordinates with existing programs		Leaders select capable implementers	
The program demonstrates effectiveness with target population(s), or leaders have information on potential program impacts on this population		Leaders arrange staff training to fit the school calendar and/or PD schedule	
Leaders consider potential language and cultural issues		Staff receive appropriate training	
The program links to academic outcomes and/or aligns with state standards		Leaders take steps to obtain buy-in from: teachers, administrators, parents, students, and other stakeholders, as applicable	
Leaders purchase materials for this program		For school-based interventions, leaders coordinate implementation with school schedules	

Source: PromotePrevent, Education Development Center

PHASE II: IMPLEMENT

During the second phase of the implementation process, districts should execute the following steps:

1	2	3	4
Pilot Programs	**Expand Implementation and Leadership**	**Monitor Implementation**	**Review Implementation**

Source: Hanover Research

STEP 1: PILOT PROGRAMS

Districts should pilot new programs by implementing them on a small scale and observing and recording initial outcomes for quality and fidelity. This step enables district leaders to ensure correct implementation, gain support for the program, and foster a sense of program ownership among staff. Ownership and support from implementation staff are key factors in new programs, as staff may otherwise resist change and, subsequently, the new program during full-scale implementation.

Leaders can engage staff in planning and select programs that align with existing structures and state standards to increase their sense of ownership. Leaders should also adhere to the following piloting and observation practices during early implementation:

PILOT PROGRAM PRACTICES	OBSERVATION PRACTICES
• Select a population that is representative of the community • Choose skilled implementers and provide them with adequate PD and ongoing support during implementation • Set up a monitoring mechanism and closely monitor the implementation to ensure implementers' fidelity to the core elements of the program	• Provide checklists completed by program staff at the end of each session • Attend sessions and complete a checklist documenting the content and activities that were completed • Videotape sessions to be reviewed and coded at a later time using the same checklists used for direct observation

Source: PromotePrevent, Education Development Center

> "Following these steps consistently will help you achieve implementation fidelity each time your school or district begins a new program, ensuring that programming is useful and fulfills outcomes that helps students and staff flourish."

STEP 2: EXPAND IMPLEMENTATION AND LEADERSHIP

To fully implement new programs, **district leaders and implementation staff must expand small-scale program components, maintain fidelity to program practices, and skillfully adjust to system changes** (such as turnover or leadership changes). Based at the University of North Carolina at Chapel Hill, the **National Implementation Research Network's** has identified a set of Core Implementation Components for districts looking to successfully expand and maintain their programs.

NATIONAL IMPLEMENTATION RESEARCH NETWORK (NIRN) CORE IMPLEMENTATION COMPONENTS

▶ Staff Performance Evaluation

▶ Decision Support Data Systems

▶ Facilitative Administrative Supports

▶ Systems Interventions

▶ Recruitment and Selection

▶ Consultation and Coaching

▶ Preservice Training

Source: National Center on Safe Supportive Learning Environments

Additionally, strong leadership must occur at the school and district levels to ensure sustainable and coherent improvement initiatives. Effective leaders support initiatives by signaling the importance of improvements to stakeholders, monitoring goals, and providing support to implementation staff.

STEP 3: MONITOR IMPLEMENTATION

Districts that successfully implement new programs also collect data for evaluations, buy-in, and improvements. Through its PromotePrevent program, the nonprofit Education Development Center recommends collecting the following information to support evaluations and sharing outcomes with staff and the community.

Is the program is being implemented with fidelity?

Are the challenges and needs identified by implementers being successfully addressed by ongoing PD and support?

Is the program an appropriate fit for the community?

Does the site effectively use grant-provided supports?

Is there adequate buy-in from staff and partners?

Does the program outcome data meet the objectives identified in the logic model?

Do adaptations compromise the program's core elements?

Are there processes in place to sustain the program (e.g., reducing staff turnover, professional development, policymaker support)?

Source: PromotePrevent, Education Development Center

STEP 4: REVIEW IMPLEMENTATION

Use the following checklist to track your implementation success.

Track and Ensure Progress: Program Implementation Checklist			
The ongoing implementation team meets regularly to troubleshoot and identify staff training needs		Principals and/or program directors receive process data on implementation	
Implementers receive time for coaching, mentoring, and giving feedback within the schedule		Leaders evaluate program delivery in terms of compliance (key components) and competence	
Leaders have a plan in place for collecting implementation data (i.e., process measures) and measures of fidelity		Project leadership creates an evaluation feedback loop that keeps decision-makers aware of program outcomes	
Leaders have a plan in place for informing decision-makers about issues and outcomes		Leaders make changes to implementation strategies, scheduling, staffing, etc. based on data	
Implementation includes strategies that will support future sustainability (e.g., training of trainers, systems change, policy changes to support the program)		Leaders only consider adaptations after implementing the program with fidelity so that adaptation occurs with maximum program familiarity	
Leaders ensure ongoing training, including booster sessions and training for new staff		Before considering adaptations, implementers make sure that they have an in-depth understanding of the program's logic model so that changes do not undermine program effectiveness	
Leaders take inventory of and maintain implementation materials		Leaders document adaptations for evaluation purposes	
Leaders continue to collect implementation data			

Source: PromotePrevent, Education Development Center

Need support to successfully implement and measure SEL in your district? Get the **Implementing Social-Emotional Learning in K–12 Schools planning workbook.**

PHASE III: SUSTAIN

The final and ongoing phase of implementation guides districts in sustaining their programs. This phase includes the following steps:

1 Engage in Evaluations	2 Continue Support	3 Sustain Programs	4 Review Implementation Evaluation and Continuation

Source: Hanover Research

STEP 1: ENGAGE IN EVALUATIONS

Districts must collect and evaluate data and outcomes throughout the implementation process to understand whether efforts support program fidelity and goals and adjust.

PROGRAM EVALUATION PROCESS

1. Engage stakeholders

2. Define the purpose and scope of the evaluation

3. Specify the evaluation questions

4. Develop the evaluation design

5. Select data sources and create a data collection plan

6. Collect and analyze the data and justify conclusions

7. Use the evaluation report for program improvement

Evaluation frameworks must also explicitly include high standards for program evaluation to help evaluators **uphold high standards of ethics and evidence at each stage of the evaluation process.** Recognized standards for strong evaluation design fall into four categories: utility, feasibility, propriety, and accuracy.

STEP 2: CONTINUE SUPPORT

Ongoing PD, reflection, and engagement can increase training and implementation effectiveness and program support. Ongoing PD should include the following elements:

CRITICAL ELEMENTS OF ONGOING PD

▸ Coaching and mentoring by skilled implementers

▸ Program booster sessions

▸ Demonstration lessons by skilled implementers

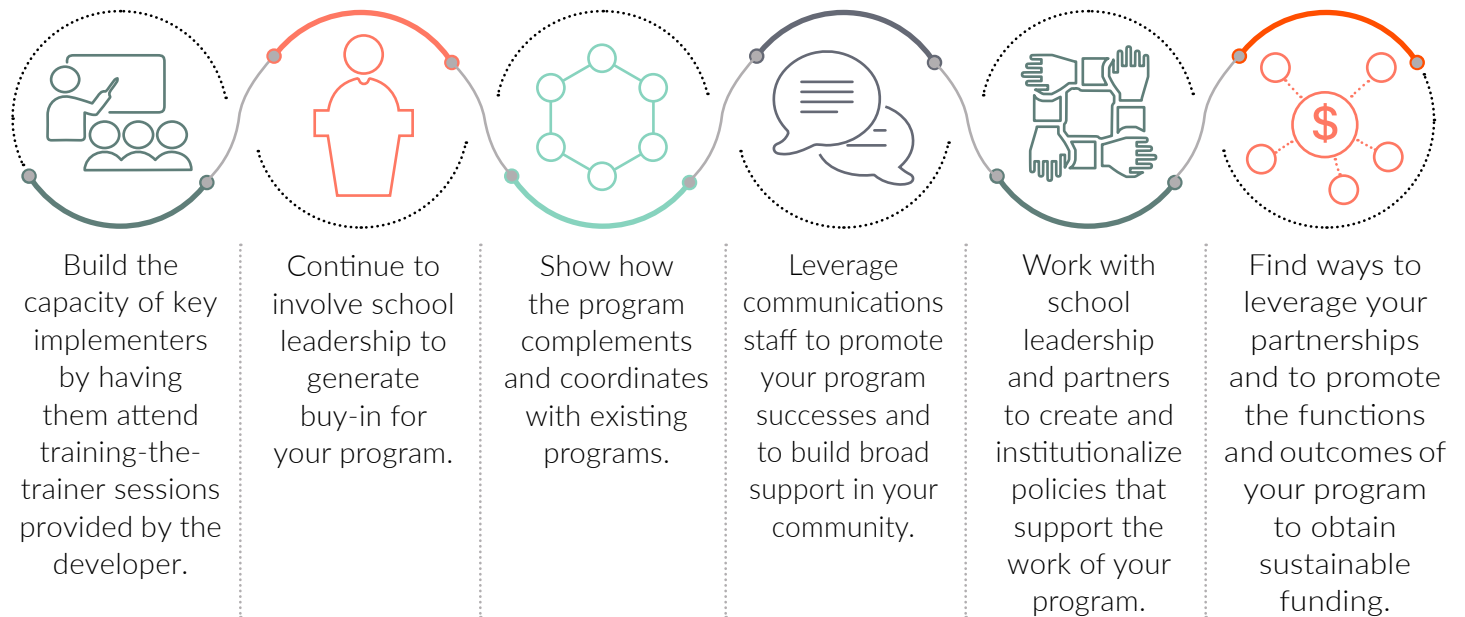▸ Regular opportunities to share challenges and successes

Additionally, district leaders must continue to solicit feedback and input from stakeholders during the implementation phase. Structures such as committees can facilitate these conversations and foster collaboration among teachers and administrators at the school and district levels.

Source: PromotePrevent, Education Development Center

STEP 3: SUSTAIN PROGRAMS

Program sustainability requires districts to build capacity and establish a long-term vision, accounting for program expansion, ongoing support, and maintaining components. Anticipating developing strong program infrastructure with regular communication and updates is necessary for a successful program.

HOW TO DEVELOP STRONG PROGRAM INFRASTRUCTURE

Build the capacity of key implementers by having them attend training-the-trainer sessions provided by the developer.	Continue to involve school leadership to generate buy-in for your program.	Show how the program complements and coordinates with existing programs.	Leverage communications staff to promote your program successes and to build broad support in your community.	Work with school leadership and partners to create and institutionalize policies that support the work of your program.	Find ways to leverage your partnerships and to promote the functions and outcomes of your program to obtain sustainable funding.

Source: PromotePrevent, Education Development Center

STEP 4: REVIEW IMPLEMENTATION EVALUATION AND CONTINUATION

Use the following checklist to track your evaluation and sustainability efforts.

Track and Ensure Progress: Program Evaluation Checklist			
Leaders consider a cost/benefit analysis of the program		Policy changes occur to support sustained implementation	
Leaders consider policy or infrastructure changes needed to support sustained implementation or the primary function of the program		Leaders build support for the program within the community and among students, parents, agencies, and/or businesses	
Leaders design training and supervision models to develop local program leadership		Partnerships actively develop strategies for institutionalizing program activities that the district successfully implemented	
Leaders prepare a core group of mentors to serve as coaches, spokespersons, role models, troubleshooters, and co-innovators		Leaders conduct and/or support training and supervision to develop local program leadership	
Partners and stakeholders create infrastructure within their own settings to begin taking responsibility for program activities		Leaders use process and outcome data to support systems change addressing initiative goals	
Leaders consider focus groups or surveys of constituents to identify whether the program has the intended impact		The program links to academic outcomes, and/or state standards and current academic programs	
Leaders consider what systems change might need to occur to sustain the program		Partners and stakeholders work within their own settings to shape vision, allocate resources, and implement policies to support and further develop initiative goals and activities	
Leaders explore how to leverage existing funding streams or pursue new funding streams to sustain the program		Partners and stakeholders succeed in incorporating program activities into their priorities and plans, so that activities are sustained	

Source: PromotePrevent, Education Development Center

Turn more of your district's data into action. Download our **Data Literacy Checklist to learn best practices for data collection and analysis.**

SOURCE LIST

Introduction

Dorn, E. et al. "Mind the Gap: COVID-19 Is Widening Racial Disparities in Learning, so Students Need Help and a Chance to Catch Up." McKinsey & Company, December 8, 2020. https://www.mckinsey.com/industries/public-and-social-sector/our-insights/covid-19-and-learning-loss-disparities-grow-and-students-need-help# [2] Gewertz, C. "Tens of Thousands of Students May Have to Repeat a Grade. Should They?" Education Week, May 24, 2021. https://www.edweek.org/leadership/tens-of-thousands-of-students-may-have-to-repeat-a-grade-should-they/2021/05 [3] "Elementary and Secondary School Emergency Relief Fund." U.S. Department of Education, Office of Elementary and Secondary Education. https://oese.ed.gov/offices/education-stabilization-fund/elementary-secondary-school-emergency-relief-fund/

"Six Steps to Implementing an Evidence-Based Program." Child Trends, March 8, 2016. https://www.childtrends.org/blog/six-steps-to-implementing-an-evidence-based-program

Collier-Meek, M.A. et al. "Focus on Implementation: Assessing and Promoting Treatment Fidelity." Teaching Exceptional Children, 45:5, June 2013. pp. 52–59. Retrived from ProQuest.

Section I:

"A Framework for Effectively Implementing Evidence-Based Programs and Practices (EBPs)." PromotePrevent, Education Development Center, 2013. p. 2. http://www.promoteprevent.org/sites/www.promoteprevent.org/files/resources/Framework%20for%20Effectively%20Implementing%20Evidence-Based%20Programs_Practices%20%282%29.pdf

"Summary of NIRN's Stages of Implementation." National Center on Safe Supportive Learning Environments. pp. 1–2. Downloaded from: https://safesupportivelearning.ed.gov/topic-research/program-implementation

Figure text reproduced nearly verbatim from: "A Framework for Effectively Implementing Evidence-Based Programs and Practices (EBPs)," Op. cit., p. 2.

Figure text reproduced verbatim from: "Implementation." National Center on Safe Supportive Learning Environments. https://safesupportivelearning.ed.gov/topic-research/program-implementation

"A Framework for Effectively Implementing Evidence-Based Programs and Practices (EBPs)," Op. cit., p. 5.

"High-Quality Curriculum and System Improvement." Learning First, January 2019. p. 14. https://learningfirst.com/wp-content/uploads/2019/01/Quality-curriculum-and-system-improvement.pdf [2] "Successfully Implementing Transformational Change in Education: Lessons Learned About the Importance of Effective Change Leadership and Strategic Communications." Battelle for Kids, 2011. pp. 1–2. https://www2.ed.gov/programs/racetothetop/communities/bfk-rttt-communications-lessons-learned.pdf [3] Srinivasan, L. and J. Archer. "From Fragmentation to Coherence: How More Integrative Ways of Working Could Accelerate Improvement and Progress toward Equity in Education." Carnegie Corporation of New York, November 2018. p. 5. https://www.carnegie.org/publications/fragmentation-coherence-how-more-integrative-ways-working-could-accelerate-improvement-and-progress-toward-equity-education/

Bartz, D.D.E. "Community Engagement: A Key Ingredient for Public Schools Gaining Stakeholders' Input and Support." National Forum of Educational Administration and Supervision Journal, 36:4, 2018. p. 1. http://www.nationalforum.com/Electronic%20Journal%20Volumes/Bartz,%20David%20E%20Community%20Engagement%20NFEASJ%20V36%20N%204%202018.pdf [2] "Strategies for Community Engagement in School Turnaround." Reform Support Network, March 2014. p. 4. https://charterschoolcenter.ed.gov/publication/strategies-community-engagement-school-turnaround

LaTurner, J. and D. Lewis. "Managing the Implementation of School Improvement Efforts." Southwest Educational Development Laboratory, 2013. p. 3. https://sedl.org/insights/1-2/managing_implementation.pdf

Figure text reproduced verbatim from: "Strategies for Community Engagement in School Turnaround," Op. cit., pp. 3–4.

Bulleted text reproduced nearly verbatim from: "A Framework for Effectively Implementing Evidence-Based Programs and Practices (EBPs)," Op. cit., p. 5.

"A Framework for Effectively Implementing Evidence-Based Programs and Practices (EBPs)," Op. cit., p. 6.

Figure reproduced verbatim with modifications from: "How Do We Build for Success." PromotePrevent, Education Development Center, 2013. http://www.promoteprevent.org/sites/www.promoteprevent.org/files/resources/How%20Do%20We%20Build%20for%20Success%20-%20Implementation%20and%20Sustainability%20Checklist.pdf

Section II:

"Six Steps to Implementing an Evidence-Based Program," Op. cit. [2] "A Framework for Effectively Implementing Evidence-Based Programs and Practices (EBPs)," Op. cit., p. 8.

"A Framework for Effectively Implementing Evidence-Based Programs and Practices (EBPs)," Op. cit., pp. 8–10.

Figure text reproduced nearly verbatim from: "A Framework for Effectively Implementing Evidence-Based Programs and Practices (EBPs)," Op. cit., pp. 8–9.

"Summary of NIRN's Stages of Implementation," Op. cit., pp. 3–4.

Figure text reproduced verbatim from: Ibid., p. 4.

McCauley, C. and J. Cashman. "The Engagement Playbook: A Toolkit for Engaging Stakeholders Around the Four Domains of Rapid School Improvement." The Center on School Turnaround at WestEd, 2018. pp. 3–18. https://files.eric.ed.gov/fulltext/ED584115.pdf

"A Framework for Effectively Implementing Evidence-Based Programs and Practices (EBPs)," Op. cit., p. 15.

Section III:

"A Framework for Effectively Implementing Evidence-Based Programs and Practices (EBPs)," Op. cit., pp. 18–20.

Centers for Disease Control and Prevention. "Framework for Program Evaluation in Public Health." MMWR, 48(No.RR–11), 1999. p. 6. https://www.cdc.gov/mmwr/PDF/rr/rr4811.pdf [2] Fleischman, H.L. and L. Williams. "An Introduction to Program Evaluation for Classroom Teachers." Development Associates, Inc., November 1996. p. 6. https://www.ccc.edu/colleges/daley/departments/Documents/Introduction%20to%20Program%20Evaluation%20-%20Fleischman.pdf [3] "A Guide to Writing a Program Evaluation Plan." Rural Health Innovations of the National Rural Health Resource Center, January 2016. https://www.ruralcenter.org/rhi/network-ta/allied-health/webinars/program-evaluation-planning-and-tools-for-allied-health

"Step 4: Gather Credible Evidence." Centers for Disease Control and Prevention, May 11, 2012. https://www.cdc.gov/eval/guide/step4/index.htm [2] "Section 1. A Framework for Program Evaluation: A Gateway to Tools." Community Tool Box. p. 1. https://ctb.ku.edu/en/table-of-contents/evaluate/evaluation/framework-for-evaluation/main

"Six Steps to Implementing an Evidence-Based Program," Op. cit. [2] "High-Quality Curriculum and System Improvement," Op. cit., p. 14.

Figure text reproduced verbatim from: "A Framework for Effectively Implementing Evidence-Based Programs and Practices (EBPs)," Op. cit., p. 13.

Poynton, J., R. Kirkland, and C. Makela. "Superintendents Building Public Trust and Engagement in Five Public School Communities." School Community Journal, 28:2, 2018. pp. 266–267. https://files.eric.ed.gov/fulltext/EJ1201954.pdf

Rubinstein, S.A. "Strengthening Partnerships: How Communication and Collaboration Contribute to School Improvement." American Educator, Winter -2014 2013. p. 24. https://www.aft.org/sites/default/files/periodicals/Rubinstein.pdf

ABOUT HANOVER RESEARCH

Hanover guides K-12 leaders in tackling academic and administrative challenges to ensure that students, parents, and staff have the tools they need to ensure all students succeed.

OUR K-12 EDUCATION SOLUTIONS

DISTRICT OPERATIONS

Determine the true effectiveness of your district operations and identify opportunities to improve.

STUDENT SUCCESS

Identify areas for improvement in your district to help all students feel supported.

STRATEGIC PLANNING

Build your strategic plan to achieve organizational alignment, engage stakeholders, and address improvement areas.

SCHOOL CLIMATE

Foster a positive learning community by identifying and closing opportunity gaps.

OPERATIONS & FINANCE

Comprehensive insights to run an efficient, financially sustainable institution.

PROGRAM EVALUATION

Evaluate performance, measure outcomes, and determine ROI to make evidence-based investments in the highest-performing programs.

TEACHER ENGAGEMENT

Attract, engage, and retain staff with targeted professional learning opportunities.

OUR BENEFITS

EXPERT

200+ analysts with advanced multiple methodology research expertise
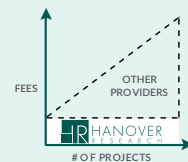
FLEXIBLE

Ongoing custom research agenda adapts with organizations' needs

DEDICATED

Exclusive account and research teams ensure strategic partnership

EFFICIENT

Annual, fixed-fee model shares costs and benefits

LEARN MORE: hanoverresearch.com/contact-us

www.hanoverresearch.com   @hanoverresearch   LINKEDIN.COM/COMPANY/HANOVER-RESEARCH

HANOVER
RESEARCH