



EVALUATING PROFESSIONAL LEARNING

A TOOL FOR SCHOOLS AND DISTRICTS

This toolkit introduces practitioners involved in the management of professional learning at the school, district, regional, or state level to key concepts of professional learning evaluation. It guides users through a process for developing an evaluation plan and includes activities, tools, and other resources for monitoring professional learning initiatives. A multidisciplinary team that includes teacher leaders, professional learning managers, data managers, and other administrators can use this tool to develop a logic model, develop evaluation questions, use existing and new data to address those questions and make sense of the data. Guidance is also provided to help the team communicate findings accurately and effectively to various audiences, such as school, district, or state leaders who can impact policies and practice.

Developed by

Nicole Breslow

Georgia Bock

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THE IMPORTANCE OF EVALUATING PROFESSIONAL LEARNING

This toolkit introduces practitioners involved in the management of professional learning at the school, district, regional, or state level to key concepts of professional learning evaluation. It guides readers through a process for developing an evaluation plan and includes activities, tools, and other resources that make it easy to apply this process to their own professional learning initiative.

The toolkit is organized into six sections. Section one describes the importance of evaluating professional learning and gives a framework for evaluation. Section two guides readers to reflect on the features of their professional learning initiative and assess how well they align with the characteristics of high-quality professional learning. Section three introduces logic models as an evaluation tool and provides guidance for creating one. Section four helps the reader think about the purpose and audience for the evaluation and identify evaluation questions that align with program outcomes and outputs. Section five provides an overview of data collection strategies and provides guidance about how to select the right strategies for your evaluation. The final section shares strategies for analyzing data and suggestions for how to use that data to make decisions about professional learning.

This toolkit should be used with a small group of stakeholders who are involved in the design, implementation, and oversight of the initiative to work through these activities together to develop a professional learning evaluation plan. This multidisciplinary team might include professional learning managers, data managers, teacher leaders, coaches, and other administrators. There are also opportunities to get input from a broader group of stakeholders at certain points in the evaluation planning process.

Why evaluate professional learning?

Districts spend significant resources on providing professional learning to teachers. Researchers estimate that most urban districts spend between \$6,000 and \$8,000 per teacher each year on professional learning and suggest that these costs are often underestimated (Sawchuk, 2010). For example, one study estimated that in the 2007/08 school year, Philadelphia School District spent almost \$162 million on professional learning, which included training for teachers as well as release time for teachers and coaches (ERS, 2013). Another study found that the average professional learning expenditure per teacher, per year in the study districts was \$18,000 (TNTP, 2015).

Yet district leaders often have little information about whether professional learning activities are having the intended impact on teacher practice and student learning (Guskey, 2000; Haslam, 2010; Killion, 2017; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Resources are limited, and information is needed to guide decision makers to use these resources most effectively. Evaluating professional learning can help decision makers determine whether the results warrant further investment to continue or expand the professional learning activities, or whether it is time to discontinue efforts and try a new approach. Evaluation also provides

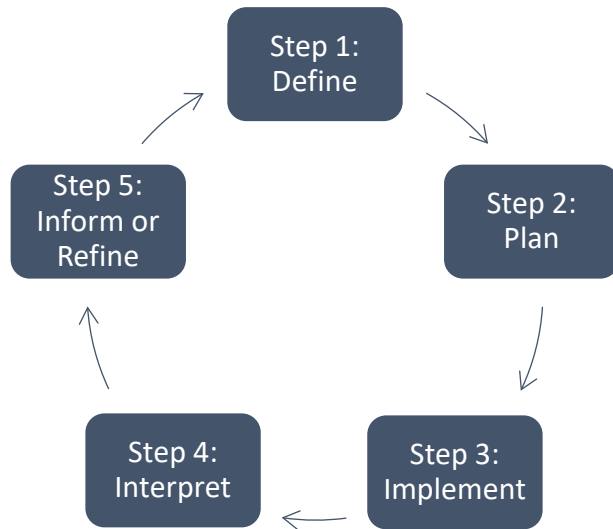
important insight about the strengths and challenges of the professional learning and how current efforts can be improved.

What is evaluation?

Evaluation is “the systematic investigation of merit or worth” of a policy or program (Guskey, 2000, p. 41). This definition implies that evaluators engage in a formal, disciplined study of the program of interest. There are two general types of evaluations: formative and summative (Mertens & Wilson, 2012). Formative evaluations are often conducted during the implementation of a program, in order to make mid-course corrections and improvements. Questions in formative evaluation might include, for example: “Was the professional learning program delivered as intended?” and “What were participants’ initial levels of learning as a result of the professional learning program?” Formative evaluation can drive continuous program improvement by providing information for decision making at key points during program implementation. In contrast, summative evaluations provide information about program effectiveness and are focused on assessing short- and long-term outcomes. They are often conducted after the completion of the program. They typically focus on questions such as: “What was the effect of the professional learning program on teachers’ use of classroom practices?” and “What was the effect of the professional learning program on students’ learning outcomes?” Evaluations often include both formative and summative questions and aim to gather information about the process of implementation and the outcomes that are achieved.

The US Department of Education’s Embedded Evaluation Model provides a framework for evaluation that draws parallels to the continuous improvement process.

Figure 1: Embedded Evaluation Model



Source: U.S. Department of Education, Office of Elementary and Secondary Education, School Support and Rural Programs. (2014). Evaluation Matters: Getting the Information You Need From Your Evaluation. Washington, D.C.

In step one, evaluators define the purpose of the evaluation and the underlying logic of the program. In step two, evaluators identify the questions the evaluation should answer and determine what evaluation design should be used. Step three examines how data should be collected and analyzed. In step four, evaluators consider how results should be used and

communicated. Finally, in step five, evaluators make decisions about the program based on the information they collected. This model illustrates that evaluation is not a linear process; rather, it is iterative and dynamic.

Evaluating professional learning

Effective evaluation of professional learning requires consideration of five critical levels of information (Guskey, 2000, 2013):

- **Level 1: Participants' reactions:** Did participants feel the professional learning was useful?
- **Level 2: Participants' learning:** Did they acquire the intended knowledge and skills?
- **Level 3: Organization support and change:** Was professional learning implementation advocated, facilitated, and supported at the school?
- **Level 4: Participants' use of new knowledge and skills:** Did participants effectively apply the new knowledge and skills?
- **Level 5: Student learning outcomes:** What was the impact on students?

Collection and analysis of data progresses from simple to more complex with each level. The levels build on one another so that success at lower levels is usually necessary—but not sufficient—for success at the levels above. An evaluation of professional learning should aim to collect data that addresses questions at each of the five levels. The types of questions addressed, information collected, and uses of that information at each level of this evaluation framework are described in Table 1.

Table 1. Guskey's five critical levels of professional development evaluation

Evaluation Level	What questions are addressed? (Represents a sampling of questions)	How will the information be gathered (Represents a sampling of tools)	What is measured or assessed?	How will the information be used?
Participants' Reaction (Guskey Level 1)	Did participants find it useful? Was their time well spent?	Questionnaires, focus groups, interviews, learning logs	Initial satisfaction with experience	To improve program design and delivery
Participants' Learning (Guskey Level 2)	Did participants acquire the intended skills and knowledge?	Simulations and demonstrations, paper-pencil activities, case study analysis	New knowledge and skill of participants	To improve program content, format, and organization
Organizational Support and Change (Guskey Level 3)	Was implementation advocated, facilitated, and supported? Was the support public and overt?	District and school records, questionnaires, structured interviews with key stakeholders	The organization's advocacy, support accommodations, facilitation, and recognition	To document and improve organizational support and/or to inform future change efforts
Participants' Use of New Knowledge and Skill (Guskey Level 4)	Did participants effectively apply the new knowledge and skills?	Questionnaires, interviews, reflections, portfolios, direct observations, video	Degree and quality of implementation	To document and improve the implementation of the program
Student Learning Outcomes (Guskey Level 5)	What was the impact on students?	School/student records, questionnaires, interviews	Student learning outcomes: cognitive, affective, psychomotor	To focus and improve all aspects of program design, implementation, and follow-up; and/or to demonstrate the overall impact of professional development

Source: Guskey, Thomas R. (2000). *Evaluating professional development*. Thousand Oaks, CA: Corwin [pp. 79–81].

DESIGNING OR SELECTING HIGH-QUALITY PROFESSIONAL LEARNING

Before investing the time and resources to evaluate a professional learning initiative, it is important to examine the initiative to ensure that it aligns with the characteristics of high-quality professional learning, as described in the literature.

Darling-Hammond, Hyler, and Gardner (2017) conducted a comprehensive review of research to identify methodologically rigorous studies that have demonstrated a positive link between teacher professional learning, teaching practices, and student outcomes. The authors analyzed these professional learning models to identify seven common features of effective professional learning:

- **Is content focused:** PD that focuses on teaching strategies associated with specific curriculum content supports teacher learning within teachers' classroom contexts. This element includes an intentional focus on discipline-specific curriculum development and pedagogies in areas such as mathematics, science, or literacy.
- **Incorporates active learning:** Active learning engages teachers directly in designing and trying out teaching strategies, providing them an opportunity to engage in the same style of learning they are designing for their students. Such PD uses authentic artifacts, interactive activities, and other strategies to provide deeply embedded, highly contextualized professional learning. This approach moves away from traditional learning models and environments that are lecture based and have no direct connection to teachers' classrooms and students.
- **Supports collaboration:** High-quality PD creates space for teachers to share ideas and collaborate in their learning, often in job-embedded contexts. By working collaboratively, teachers can create communities that positively change the culture and instruction of their entire grade level, department, school and/or district.
- **Uses models of effective practice:** Curricular models and modeling of instruction provide teachers with a clear vision of what best practices look like. Teachers may view models that include lesson plans, unit plans, sample student work, observations of peer teachers, and video or written cases of teaching.
- **Provides coaching and expert support:** Coaching and expert support involve the sharing of expertise about content and evidence-based practices, focused directly on teachers' individual needs.
- **Offers feedback and reflection:** High-quality professional learning frequently provides built-in time for teachers to think about, receive input on, and make changes to their practice by facilitating reflection and soliciting feedback. Feedback and reflection both help teachers to thoughtfully move toward the expert visions of practice.
- **Is of sustained duration:** Effective PD provides teachers with adequate time to learn, practice, implement, and reflect upon new strategies that facilitate changes in their practice" (Darling-Hammond et al., 2017, pp. v–vi).



Activity: How well do the features of high-quality professional learning align with your professional learning initiative?

Using the descriptions of effective design features of professional learning given above, consider the extent to which these design elements are present in the design of your professional learning initiative. For each design feature, provide a rating where 4 indicates that the feature is strongly present in the professional learning design and 1 indicates that the feature is missing from the design (Table 2). If the design of your professional learning initiative is weak in some areas, consider making modifications to strengthen the design before moving forward with implementation and evaluation.

We suggest having members of a team complete this assessment independently before convening to discuss the ratings. Discussion prompts might include:

- Which design features were rated the strongest for our professional learning model? What are some examples of how these features are included?
- Which design features were rated the weakest for our professional learning model? Are there ways we might modify the design to better reflect these features?

Table 2. Professional learning design evaluation checklist

PD Design Feature	1	2	3	4	Explanation for your Rating
Is Content Focused					
Incorporates Active Learning					
Supports Collaboration					
Uses Models of Effective Practice					
Provides Coaching and Expert Support					
Offers Feedback and Reflection					
Is of Sustained Duration					

DEVELOPING A LOGIC MODEL

Logic models are a tool for both program design and program evaluation. A logic model describes the theory of action for a program or initiative. It provides a map that illustrates its goals, the pathways to achieving those goals, and how to know when the goals have been met. A logic model shows the relationships between the program inputs and the desired outcomes of that program. It can aid program designers in defining a program before implementation and can be used to check progress during implementation, monitoring, and evaluation.

Logic models document the key inputs, activities, outputs, and outcomes of a program (Mertens & Wilson, 2012; Rossi, Lipsey, & Freeman, 1997; Shakman & Rodriguez, 2015). They provide one way to show a clear connection between the program components—in this case, professional learning and desired outcomes.

Logic model components

A typical logic model contains the following components (W. K. Kellogg Foundation, 2004; Shakman & Rodriguez, 2015):

- **Problem statement:** The problem or challenge that the program or policy is designed to address.
- **Resources (inputs):** The material and intangible contributions that are or could reasonably be available to address the problem.
- **Activities:** How the program or policy proposes to address the problem.
- **Outputs:** The immediate results of the activities, usually in concrete, measurable evidence that the activity occurred.
- **Outcomes:** The short- and long-term results for participants that can be attributed to the activities. Short-term outcomes occur directly after program implementation and long-term outcomes are more distant.
- **Impact:** The ultimate, desired outcome of the program, usually after long-term implementation and often dependent on conditions beyond the scope of the program.

Logic models often contain assumptions, or beliefs about participants, program staff, or other conditions that must be true for the outcomes to be realized (W. K. Kellogg Foundation, 2004; Shakman & Rodriguez, 2015). These assumptions might be implicit, or not directly stated in the program's logic. However, examining the assumptions is key to understanding why a program succeeded or failed.

An example of a logic model for a professional learning initiative intended to improve student engagement and learning in STEM at the middle and high school levels is shown below in Table 3. The program was a partnership between two universities—a large, urban public school district, and several supporting organizations—and focused on building the content and pedagogical knowledge of middle and high school teachers through a variety of activities.

Table 3. Example logic model for the STEM Partnership Professional Learning Program

Problem Statement: Students in the district do not have enough access to high-quality learning experiences in science, technology, engineering, and mathematics (STEM) as they transition from middle to high school. Students of color and female students tend to be underrepresented in STEM fields in higher education.

Resources	Strategies & Activities	Outputs	Short-term outcomes	Long-term outcomes	Impacts
District middle and high school educators and students	District teachers attend summer workshops at university labs and participate in professional learning communities (PLCs) during the school year	Number of middle and high school teachers participating	Teachers report satisfaction with professional learning in inquiry-based STEM at the university	STEM PLCs become part of the schools' collaborative routines	Teachers and university staff feel professionally connected to a broader STEM community of researchers and practitioners
University facilities and staff: faculty and students	University faculty and students mentor teachers with inquiry-based science and lesson planning	Number of summer workshops and PLC meetings	Teachers use the professional learning to create inquiry-based curriculum	The quality of STEM curricula in schools increases	More MS & HS students pursue STEM in higher education
Local STEM businesses	Students attend in-school and after-school STEM activities	Number of inquiry-based curriculum lessons created	PLC members have a positive experience	University mentors feel more connected to opportunities related to STEM in the community	
Local museums		Number of university faculty and students participating as mentors	Middle & high school (MS & HS) students attend an increased number of STEM-related activities and field trips	MS & HS students' learning outcomes (for example, assessment results) in STEM increase	
Community partners, including parents		Number of in-school or after-school activities for students			
Funding from the National Science Foundation		Number of field trips to local STEM businesses or museums	MS & HS students report increased interest in STEM topics		

Collaborative development process

A logic model can be collaboratively developed by a broad group of stakeholders to allow for multiple perspectives on how the program should operate. The process of collaboratively developing a logic model can help stakeholders develop a common understanding of a program's intended outcomes and how program components are intended to influence them. These conversations can create a shared vision and establish buy-in and shared ownership of the initiative. The resulting logic model can also be a helpful communication tool for ensuring everyone involved in the initiative understands its purpose and how different components fit together. Additionally, logic models are intended to be living documents, and program staff should update them frequently for use as a planning and evaluation tool.



Activity: Develop a logic model for your professional learning initiative

Use the blank template (Table 4) to develop a logic model for your professional learning initiative. Be sure to gather and incorporate feedback from multiple stakeholders during the development process. If more guidance is needed, please refer to [REL Northeast & Islands' Logic Model Workshop Toolkit](#).

The REL Northeast and Islands toolkit [Logic models for program design, implementation, and evaluation: Workshop toolkit](#) (Shakman & Rodriguez, 2015) is designed to help practitioners learn the purpose of a logic model, the different elements of a logic model, and the appropriate steps for developing and using a logic model for program evaluation. The toolkit includes materials for a two-part workshop guiding participants through the logic model development process, including a facilitator workbook, a participant workbook, and a slide deck.

Table 4. Logic model

Problem Statement:

Resources	Strategies & activities	Outputs	Short-term outcomes (changes in educator knowledge, skills, and mindsets)	Long-term outcomes (changes in educator practice)	Impacts (changes in student outcomes)



Activity: Describe implementation of professional learning activities

Once the logic model has been developed, the next step is to document what it looks like to effectively implement each of the professional learning strategies/activities included in that logic model. Establishing a clear understanding of the components of effective implementation that is shared among your team is critical to ensuring strong and consistent implementation and successful evaluation.

The guiding questions below prompt you to think about how you will design your professional learning for some common professional development activities:

- **Workshops:** Who leads the workshops? Who participates? Is participation voluntary? How often are they held? What content is covered? Do workshops build on one another or can the content stand alone? What pedagogy is used? Is any follow-up support provided to help teachers implement what they have learned in the classroom?
- **Coaching:** Do coaches use a common approach to working with teachers? How are coaches hired, trained, and supported? How do you ensure coach quality? How are teachers assigned to work with coaches? Is it voluntary? How often do coaches meet with teachers and for how long? How are teacher learning goals identified? How do coaches use their time with teachers?
- **Professional learning communities (PLCs):** How are teachers grouped into PLCs? How often do they meet? Is there a group leader? What are the goals of the PLCs and how is this determined? Does the group follow a protocol? How is the time used?
- **Analyzing student work:** Who participates in analysis of student work? What student work is used? How often is it analyzed? Is a particular protocol for looking at student work used? How is information from the analysis used?
- **Peer observation:** How many teachers participate? How are teachers selected to participate? How are peers matched? Is there a clear purpose for each observation and how is this purpose identified? How is this time used? Is any guidance provided for the content or format of this time? Do peers use an observation protocol? Is there an opportunity to pre-conference or debrief? How often do peers observe one another?
- **School visits:** What are the goals of school visits? How do you select schools or classrooms to visit? Do you use an observation protocol or some other tool to guide your experience? Who attends the school visits? How is the information learned documented or shared?

You can document your thinking about what implementation looks like in practice for each of the strategies/activities in your professional learning initiative in Table 5. In the first column, list all the strategies/activities that were included in your logic model. The columns to the right ask you to provide specific details describing how each strategy/activity is intended to be implemented.

Table 5. Implementation of strategies/activities

Strategy/Activity <i>From logic model</i>	Intended Outcomes <i>From logic model</i>	Participation <i>Who participates? How are they selected? How are participants grouped? Is participation voluntary?</i>	Content <i>What content is addressed and by whom?</i>	Format <i>How is the learning activity structured? Is a protocol used?</i>	Frequency and Duration <i>How often does the learning activity take place and for how long?</i>
<i>Example:</i> University faculty and students mentor teachers with inquiry-based science and lesson planning.	Teachers use the professional learning to create inquiry-based curriculum; the quality of STEM curricula in schools increases.	60 teachers across 12 schools will participate. Schools are selected through an application process that assesses their commitment to STEM education and prioritizes high-need schools. Mentors are matched by STEM focus area.	Mentors observe their mentees biweekly and provide written and in-person feedback. Teachers collaborate with their mentors in monthly curriculum planning workshops where they develop inquiry-based STEM units and reflect on implementation.	Observations use a structured feedback protocol focused on specific instructional practices. Unit planning also follows a specific process that is modeled at the first mentor-teacher workshop.	Biweekly classroom observations include face-to-face debrief; workshops are held monthly. Both occur for 2 years.

DEVELOPING STRONG EVALUATION QUESTIONS

Developing strong evaluation questions requires a clear understanding of the purpose of the evaluation and how the results will be used by different stakeholder groups.

Defining evaluation audience and purpose

Identifying the different stakeholder groups that have an interest in the professional learning initiative is a key step in the evaluation process. Stakeholders who might be directly involved in program implementation include coaches, teachers, and professional learning managers; other interested parties might include board of education members, funders, or community members. Stakeholders may have different evaluation priorities and ways they intend to use the evaluation findings. Clarifying the purpose of the evaluation based on different stakeholders' priorities and on how evaluation results are intended to be used will help to guide the development and prioritization of evaluation questions.

Involving stakeholders in the evaluation process is important for a number of reasons. Stakeholders represent different perspectives and can help ensure that questions that are meaningful to different groups are asked. Similarly, their different perspectives and experiences can strengthen conversations about data analysis and decision-making. Finally, stakeholders will be more likely to trust, support, and use the evaluation findings if they participate in the evaluation process from the start.



Activity: Identifying and engaging stakeholders

The evaluation team can use the table below to help identify stakeholders and their interests in the evaluation. For each stakeholder group, identify possible questions group members might have about the professional learning initiative, how they might use evaluation results, and how often they should be engaged in the evaluation process.

Table 6. Identifying evaluation audiences and purpose

Who is the stakeholder?	What questions might this stakeholder have about the initiative?	How might they use the evaluation results?	How often should you communicate with them?
<i>Example:</i> Teachers who lead PLCs	<ul style="list-style-type: none"> Do teachers find the PLC meetings useful? What challenges in teacher practice were identified? 	<ul style="list-style-type: none"> Make changes to PLC meetings Focus future PLC meetings on challenge areas identified in the evaluation 	Frequently

Using the logic model to develop evaluation questions

The logic model can be helpful in generating evaluation questions that examine connections between the different components and the underlying assumptions. Questions that target “resources,” “inputs,” “activities,” and “outputs” can help the evaluation team understand whether the professional learning initiative was implemented as intended and what barriers and facilitators to implementation might have been at play. These questions are useful for gathering information that can inform program improvement and help leaders correct course during implementation. Evaluation questions that focus on “outcomes” provide information about program effectiveness and about whether the program strategies achieved the desired outcomes.

The breadth and scope of evaluations are often limited by the number of resources available to district and school decision makers. For this reason, it may be necessary to prioritize research questions by focusing on those that best align with the purpose of the evaluation, can be answered within data capacity constraints, and will provide the most useful and actionable information.

Table 7 illustrates an example of evaluation questions that align with each of the logic model components. This tool can help the evaluation team use the logic model to systematically generate evaluation and prioritize evaluation questions.

Table 7. Example of evaluation question mapping and prioritization

Logic model component	Example evaluation questions	Purpose	Priority (High, Medium, Low)
Resources	Why did local STEM businesses feel compelled to participate?	Understand the motivation of partners to inform future recruitment efforts	Low
Activities/Strategies	How did PLCs use their meeting time? What were meeting goals and what topics were addressed?	Understand how the PLC strategy is being implemented	High
Outputs	How many teachers participated in PLCs? How often did they attend a PLC meeting?	Determine dosage of professional learning	Medium
Outcomes	Were the participating teachers satisfied with the PLCs?	Interpret teacher attitudes as an indication of buy-in	High
Impacts	Do more students enroll in STEM courses in post-secondary education after participating in this program?	Assess impact on one student outcome	High



Activity: Mapping and prioritizing evaluation questions

Table 8 provides a template for brainstorming evaluation questions that address each component of the logic model. Identify the purpose of each evaluation question to help discern whether a question is high, medium, or low priority.

Table 8. Evaluation question mapping and prioritization

Logic model component	Evaluation questions	Purpose	Priority (High, Medium, Low)
Resources			
Activities/ Strategies			
Outputs			
Outcomes			
Impacts			

DEVELOPING A DATA COLLECTION PLAN

A key step in evaluating professional learning initiatives is creating a strong data collection plan that ensures that the data collected are aligned with the evaluation questions. This section will provide a brief overview of different types of data and data collection instruments and a list of additional resources on developing data collection instruments. The three activities included in this section, *Documenting Existing Data Collection*, *Data Collection Planning Template*, and *Data Collection Calendar*, are intended to guide district teams through the process of identifying new or existing data sources needed to answer evaluation questions and of mapping a timeline for data collection activities.

Data collection strategies

Different types of evaluation questions require different types of data to address them. Some questions might be better suited to collecting qualitative data, and some might be better suited to collecting quantitative data.

The context of the evaluation may also dictate the types of data that are collected. When collecting data from all types of sources, it is important to ensure that the data are of high quality and are representative of the population or stakeholder groups involved in the professional learning initiative. Evaluation teams are encouraged to ask the following questions during the planning process:

- 1. Are the data representative?**

Do the data include all stakeholders involved in the professional learning initiative?
Do the data reflect the demographics of the population involved in the professional learning initiative?

- 2. Are the data valid and reliable?**

Have the data been collected in a consistent way?
Does the data collection instrument accurately measure the outcome of interest?

- 3. Are the data complete?**

Was the sample size large enough?
Did enough people respond to the survey?

Some common data sources, a brief overview of their advantages and disadvantages, and suggested resources for detailed information about each type of data source are listed in Table 9.

Leveraging existing data

Existing data—such as professional learning logs, coaching session records, and other administrative data—can be an asset to evaluation teams. Evaluation questions can often be answered by analyzing data that the district is already collecting. The following activity provides guiding questions to help evaluation teams identify existing data sources that are aligned with their evaluation questions.

Table 9. Common data sources

Type	Advantages	Disadvantages	Resources
Interviews	<ul style="list-style-type: none"> ▪ Opportunity to collect in-depth information about a topic ▪ Interviewer can ask clarifying questions 	<ul style="list-style-type: none"> ▪ Time consuming and potentially costly to collect ▪ Lack of anonymity ▪ Self-reported responses may not match behavior of participants 	Guidance for developing interview protocols (REL Midwest, Harris, 2019)
Focus groups	<ul style="list-style-type: none"> ▪ Efficient way to collect in-depth data ▪ Participant interactions may enhance responses 	<ul style="list-style-type: none"> ▪ Group environment can inhibit or influence participant responses ▪ Lack of anonymity 	Guidance for conducting focus groups (MassTAPP, 2015)
Surveys	<ul style="list-style-type: none"> ▪ Are easy to distribute to a large number of participants ▪ Provide anonymity ▪ Can contain open- and closed-ended responses 	<ul style="list-style-type: none"> ▪ Responses may not provide as much detail as focus groups or interviews ▪ Response rates are important for accurate analysis ▪ Self-reported responses may not match behavior of participants 	Survey development guide (REL Northeast and Islands, Irwin & Stafford, 2016)
Observations	<ul style="list-style-type: none"> ▪ Can collect information about participant behaviors directly without relying on self-report ▪ Can collect information about context of research setting 	<ul style="list-style-type: none"> ▪ Time consuming and more costly ▪ Training required for observers to conduct reliable, observations ▪ Behavior may change in presence of observer 	Observations and rubric development (REL Midwest, Walston, 2018)
Document review	<ul style="list-style-type: none"> ▪ Data already exists ▪ Can provide information about historical trends ▪ Does not require interaction with participants 	<ul style="list-style-type: none"> ▪ Potentially time consuming to conduct ▪ No opportunity to ask clarifying questions or questions about context ▪ Training required to ensure reliability of reviewers 	Evaluation brief: Document review (CDC, 2018)
Administrative records	<ul style="list-style-type: none"> ▪ Designed to measure specific indicators (for example, workshop attendance) ▪ Provide an objective source of information 	<ul style="list-style-type: none"> ▪ Can oversimplify findings ▪ Data sharing agreement may be needed to access information 	



Activity: Documenting existing data collection

Making good use of the data about the professional learning initiative that have already been collected will help to minimize the burden of data collection on professional learning participants and those involved in its evaluation. It is important to identify any data that are already being collected about the professional learning initiative and to describe how those data are currently being used (see columns two and three of Table 10). In the third column, review the list of evaluation questions and identify any questions that may be addressed or partially addressed by those data.

Table 10. Existing data sources

What data related to the professional learning initiative are currently being collected?	How is this information currently being used?	What evaluation question(s) might this information help answer?

Identifying and addressing gaps in the data

After identifying data sources that are available to support the evaluation, it is important to consider which evaluation questions have not been fully addressed and to discern which instruments are appropriate for collecting corresponding data. Evaluation teams may need to create or modify new instruments to collect data that are missing. For detailed guidance on developing various instruments, refer to the resources in Table 9. The following activities—the *Data Collection Planning Template* and the *Data Collection Calendar*—are intended to help evaluation teams further align data sources with evaluation questions, plan for the development of new instruments, and map a timeline for data collection activities.



Activity: Using the data collection planning template

Directions: Use Table 11 to describe the data needed to answer each evaluation question. More than one data source may be needed to answer a question, and some data sources may provide information for multiple evaluation questions. In Table 11 (part A), list each evaluation question/data source pair on a separate line. In the space at the bottom of the table, note any evaluation questions that have not yet been addressed. Circle any evaluation questions in column one that can't be fully answered without additional data. In Table 11 (part B), identify any new instruments that need to be developed for the evaluation and begin planning for their development.

Table 11 (Part A). Aligning evaluation questions with data sources

Evaluation question	Data source	Does this currently exist?	What type of instrument?	When is it collected?	Who administers it?	Where are the data stored?	Notes
<i>Example:</i> Are teachers implementing student-centered instructional practices?	Principal observations	Yes	Observation protocol	Quarterly	Principals	Secure storage server	Data may need to be de-identified
Evaluation questions not yet addressed:							

Table 11 (Part B). Identifying or developing instruments for new data collection

Instruments needed for new data collection	Purpose What questions will this instrument address? How will it be used?	New or Existing? Are you developing a new instrument or revising an instrument you already have?	Resources What instruments already exist that you can use or adapt?	Point Person Who is responsible for developing this instrument?	First Draft Due (date)	Final Draft Due (date)
<i>Example: Survey</i>	Do teachers have the resources to implement the content from professional learning workshops?	New	Workshop materials and teacher evaluation rubrics	Aiesha	December 2020	February 2021



Activity: Using the data collection calendar

Directions: Once the *Data Collection Planning Template* (Table 11) has been completed, use the *Data Collection Calendar* (Table 12) to assist in mapping the data collection activities throughout the evaluation. For each data source, note the activities used and the dates on which the data collection process will be completed. Consider the timing of data collection activities to avoid particularly busy times or multiple requests timed close together to minimize any burden on participants.

Table 12. Data collection calendar

Data Source	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
<i>Example:</i> Teacher interview	Receive feedback on survey instrument from principal and professional learning director	Finalize survey	Administer survey to teachers		Analyze survey results							

MAKING MEANING OF YOUR DATA

The previous sections have focused on planning for professional learning evaluation, developing evaluation questions, and collecting data. This final section will focus on analyzing data and crafting a story to communicate the findings. The analysis process is summarized in six steps that can be tailored to the type of data that are being analyzed. The accompanying roadmap, *Making Sense of Data*, walks the user through the analysis process and provides guiding questions for each step. Two additional activities, *Collaborative Data Study Protocol* and *Craft and Communicate Your Data Story*, provide guidance on analyzing data to drive decision-making and communication of findings to key stakeholders.

Overview of data analysis methods

There are some key distinctions between qualitative and quantitative data analysis methods that affect how they can be used in program evaluations.

Quantitative analysis methods often include methods of summarizing the data or information collected to assess the value or impact of a program (Shakman & Rodriguez, 2015). Quantitative analysis may also include calculating inferential statistics that can be used to identify relationships or causal connections. The tools in this section focus on basic descriptive analyses that can be conducted without the use of sophisticated statistical software. Examples of these descriptive analyses methods include calculating the mean, median, mode, and range for a set of data. It is also informative to look at frequencies and cross-tabulations for categorical data. Generating cross-tabulations allows for comparisons across different groups in the data. For example, it may be of interest to look at the number, or frequency, of teachers with different levels of experience who reported workshop content to be useful or not useful. These types of quantitative analyses help to summarize program inputs, activities, and outputs. However, quantitative analyses often lack the ability to uncover contextual information about the findings or to explain why something happened.

The REL Northeast and Islands toolkit [Practitioner Data Use in Schools: Workshop Toolkit](#) (Bocala, Henry, Mundry, & Morgan, 2014) provides additional resources for district leaders, school officials, teacher leaders, and coaches who seek to use data to drive decision-making processes.

Key Quantitative Analysis Steps

1. Identify the unit of analysis and data elements of interest.
Example unit of analysis: teacher
Example data element: indicator for attendance at each professional learning workshop
2. Identify, amend, and document data errors. Begin by looking at outliers. Look for and document missing data.
3. For continuous variables: calculate descriptive statistics such as mean, median, mode, and range.
Example continuous variable: The amount of time students spent in afterschool STEM activities
4. For categorical variables: calculate frequencies and generate cross-tabulations.
Example categorical variable: The number of beginning, midcareer, and experienced teachers who attended professional learning workshops

Qualitative analysis methods involve analyzing data that are collected through interviews, focus groups, and observations. These methods often involve identifying recurring themes or ideas across the data. This process can be done by developing a priori codes, which are essentially words or phrases that draw on concepts included in the data collection instruments. A priori codes are developed before the data are analyzed. Qualitative findings can provide useful context for understanding and interpreting quantitative findings. Furthermore, qualitative findings may provide additional information on areas for program improvement. Since qualitative analyses can be time consuming and expensive to conduct, they are usually employed on a smaller scale than quantitative methods. As a result, qualitative data may not be conducive to generalizing or making predictions about broader populations.

Key Qualitative Analysis Steps

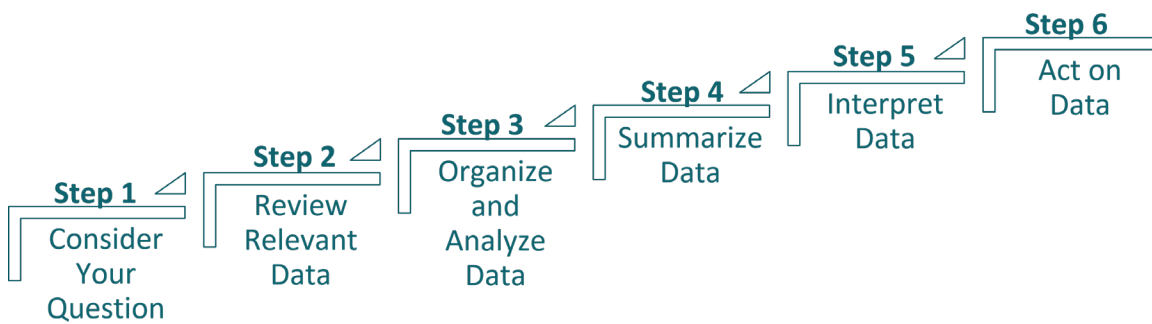
1. Develop a priori codes based on qualitative data collection instruments.
Example: For an interview question asking teachers to discuss why they did not implement workshop content in their classrooms, a priori codes might include “not enough time,” “lack of alignment with curriculum,” “complicated implementation,” and “other challenges.”
2. Have at least two people code the data to ensure reliability of analysis and to reduce bias. Discuss any differences between coders, and refine or identify new codes.
3. Review frequencies of codes and identify overarching themes across the data.

Using both quantitative and qualitative methods strengthens an evaluation by incorporating the benefits of both approaches. Quantitative methods can provide an overarching picture of what is happening in a professional learning initiative, such as the attendance patterns of teachers participating in a workshop series. Qualitative methods can provide contextual information about these findings, such as understanding teacher perceptions about the relevance of the workshop content.

Understanding the data analysis process

Data analysis goes beyond simply summarizing and reporting on the data that have been collected. Ultimately, the evaluation questions should drive how teams choose analysis methods, interpret results, and communicate findings to stakeholders. The six-step analysis process is shown in Figure 1. Ideally, steps 1 through 5 of the analysis process should be completed for each evaluation question. Once data analysis and interpretation has been completed for all evaluation questions, evaluation teams should holistically review and identify action steps based on the findings.

Figure 1. Data analysis process



Activity: Using a roadmap to make sense of your data

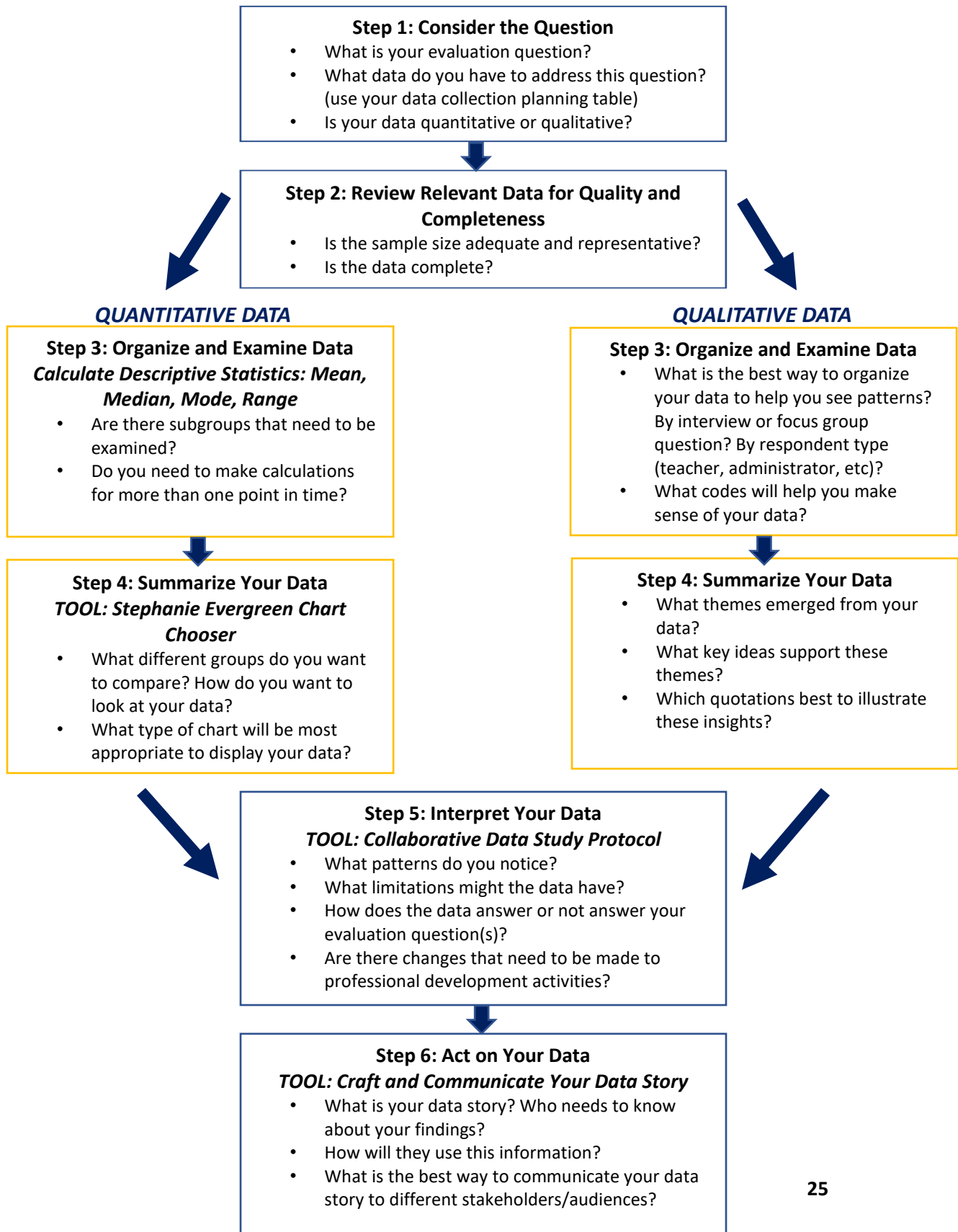
This roadmap contains six key steps (Figure 2). The evaluation team should begin by answering the guiding questions for steps 1–5 **for each evaluation question**.

- *Steps 1 and 2* prepare the evaluation team to conduct the analyses. Before beginning, the evaluation team should determine what data will be used to answer each question and assess the quality of that data.
- *Steps 3 and 4* involve slightly different processes, depending on whether the evaluation question can be answered quantitatively or qualitatively.
 - For quantitative evaluation questions, data can be displayed using a variety of charts and graphs. Stephanie Evergreen’s [blog post](#) on building data visualizations in Excel provides more information about selecting and creating appropriate data visualizations (Evergreen, n.d).

- For qualitative evaluation questions, findings can be illustrated by reporting the frequency of emergent themes and highlighting quotes from interviews, observations, or focus group data.
- *Step 5* involves an additional activity, the *Collaborative Data Study Protocol*. This tool may also be used by district or school teams on a quarterly basis to reflect on program activities and identify action steps for program improvement.
- Once steps 1–5 of the analysis process have been completed for each question, *Step 6* will guide the evaluation team through the process of creating a story from the findings and communicating that story to stakeholders. The activity *Craft and Communicate Your Data Story* acts as a guide for this final step.

Figure 2. Roadmap for Making Sense of Data

Roadmap for Making Sense of Your Data





Activity: Using a collaborative data study protocol

This activity¹ should be conducted during Step 5 of the data analysis process, interpreting data. When engaging in the data-driven decision-making process, it is important to include a variety of school or district team members involved in professional learning. Each team member brings a different set of experiences and perspectives, contributing to a robust review of the data. The team can follow the step-by-step process outlined below to review and interpret data.

Purpose	This protocol provides a structure to support collaborative analysis of evaluation data to inform decision-making about professional learning activities and drive continuous improvement.
When to Use	Consider using this quarterly to review data and reflect on progress, or select key milestones during the year that would make a data review timely.
Time	45 to 60 minutes
Materials	Compilation or synthesis of raw data, data visualizations
Roles	Facilitator, timekeeper, notetaker

1. **REVIEW** the evaluation questions that are addressed by the data being discussed today. Check to make sure each person understands the what data were collected, the method(s) that were used to collect it, and the question(s) the data are meant to address. **(3–5 minutes)**
2. **PREDICT** what you believe the data will reveal. Each person is asked to state their assumptions and expectations about what they think the data will reveal. **(2–5 minutes)**
3. **EXAMINE** copies of the data compilations and visualizations. Each person silently reviews the data and makes notes about observations and questions. **(10 minutes)**
4. **ASK** clarifying questions about the data. Make sure that each person understands the organization and meaning of the data. **(5 minutes)**
5. **OBSERVE** what you see in the data without judgement or interpretation. Ask each person to share an observation with a clear reference to the data. Observations should include sentence starters like *I see... I observe ... I notice ... The patterns and trends I see are ...* **(10–15 minutes)**

¹ This activity is adapted from the collaborative data analysis protocol developed by Education Development Center (EDC, 2019).

6. INTERPRET/INFER what the data reveals. Analysis can include the following questions (10–15 minutes):

- What might explain the patterns or themes that emerge in the data?
- What assumptions might be underneath what we are noticing in the data?
- What areas in the data stand out as needing further explanation?
- How do the data answer or not answer our question(s)?
- What new questions emerge from the data?

7. IDENTIFY lessons learned and implications for next steps. (10 minutes)

- Consider whether additional data need to be collected to address questions and make modifications to the data collection plan.
- Consider whether changes to professional learning activities might need to be made and plan for how those changes will be communicated and implemented.



Activity: Crafting and communicating your data story

Directions: Decisions to scale up or make changes to a professional learning initiative often involve stakeholders who are not part of the process for implementing or analyzing the program. The way in which data and information is communicated can help stakeholders determine what action steps to take. The *Craft and Communicate Your Data Story* Tool is intended to help evaluation teams tailor information to specific audiences.

Teams should begin by answering the list of guiding questions to determine what story they want to communicate to stakeholders. After establishing the data story, teams should complete Table 13 to determine how to communicate the story to key target audiences.

Guiding questions for crafting your data story:

1. What problem were you trying to solve?
2. How did you try to solve that problem? (describe your program)
3. What were the goals and intended outcomes of your program?
4. What were your evaluation questions?
5. What information did you collect to answer these questions?
6. What did you learn from your data?
 - Did you meet your goals and intended outcomes?
 - Did you answer your evaluation questions?
 - Were there any surprising findings?
 - What are some key strengths to highlight?
 - What are some areas for improvement?
 - What new questions emerged?
7. What actions are you taking as a result of your data?

Table 13. Communicating your data story

Who are your target audiences?	What do they need to know?	How will they use this information?	What is the best way to communicate this information?	When should this information be communicated?
<i>Coaches (example)</i>	<ul style="list-style-type: none"> • <i>Progress toward outcomes that relate to coaches and teachers</i> • <i>Information about coach and teacher practices</i> • <i>Strengths and challenges of implementation</i> 	<ul style="list-style-type: none"> • <i>Provide insights about the data and contribute to recommendations for program improvements</i> • <i>Improve their implementation of the program</i> 	<ul style="list-style-type: none"> • <i>Collaborative data study and reflective discussion</i> • <i>Detailed summaries of data</i> • <i>Brief written summaries of key takeaways and implications for practice</i> 	<ul style="list-style-type: none"> • <i>Quarterly coach meetings</i>
<i>Assistant superintendent for teaching and learning (example)</i>	<ul style="list-style-type: none"> • <i>Progress toward outcomes</i> • <i>Participant reactions</i> • <i>Successes and challenges</i> 	<ul style="list-style-type: none"> • <i>Make decisions about program resources and staffing</i> • <i>Make changes to program implementation</i> • <i>Make decisions about the future of the program (scale up, sustainability, or discontinuation)</i> 	<ul style="list-style-type: none"> • <i>Memo</i> • <i>Report</i> • <i>Presentation and discussion at a leadership team meeting</i> 	<ul style="list-style-type: none"> • <i>Quarterly memo</i> • <i>Annual report</i> • <i>Annual presentation and discussion</i>

CONCLUSION

This tool can be used by practitioners at the school, district, regional, or state level to incorporate evidence into their decision-making around professional learning initiatives. It guides readers through a process for developing an evaluation plan and includes activities, tools, and other resources for monitoring professional learning initiatives. A multidisciplinary team that includes teacher leaders, professional learning managers, data managers, and other administrators can work together to develop a logic model, develop evaluation questions, use existing and new data to address those questions, and make sense of the data. The team can collaborate to ensure that the findings are communicated accurately and effectively to the audiences, such as school, district, or state leaders who can impact policies and practice.

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