Learning Before Going to Scale: An Introduction to Conducting Pilot Studies

Regional Educational Laboratory Appalachia at SRI International

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Implementation Pilot Studies

In 2017 the Regional Educational Laboratory Appalachia (REL AP) partnered with the Tennessee Department of Education (TDOE) to develop an implementation assessment tool for its statewide Response to Instruction and Intervention (RTI[2]) framework. As part of the tool development process, TDOE and REL AP collaborated to plan an implementation pilot study. Conducting an implementation pilot study to "test" out a new initiative, such as the use of a new tool, in a small sample of education settings can provide state and local leaders with data to inform decisions about the supports and conditions necessary to scale up for optimal implementation. In this case, TDOE was particularly interested in conducting an implementation pilot study to inform tool refinements and identify training needs before scaling up for statewide use.[1] TDOE staff also wanted to learn about a systematic process for conducting an implementation pilot study as part of a broader data-informed decisionmaking process for the implementation of new initiatives.

Through the planning process, TDOE partners learned enough about systematically conducting a pilot study that they asked that the process be documented for future reference. They anticipated that their staff would benefit from understanding the steps involved and resources needed to conduct an implementation pilot study.

What is the purpose of this resource?

This resource describes a systematic process for plannning and conducting implementation pilot studies to inform decisionmaking. It equips state education leaders, including those involved in assessment, accountability, and research, as well as district-level research, assessment, and curriculum leaders with a practical, step-by-step process that provides information about the feasibiliy of implementing an initiative in a particular context. This resource describes the purpose and benefits of implementation pilot studies and the steps

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[1] In spring 2020 REL AP and TDOE began the pilot study process by identifying roles and responsibilities, developing pilot study questions, determining data collection methods, and recruiting sites across the state to participate. REL AP planned to meet with eight schools in five districts that had agreed to participate and begin pilot study activities in May 2020. Because of COVID-19 related school closures, the pilot study did not move forward.

involved in developing and executing one. This resource does not address the additional time and effort required of any school or district participating in a pilot study.

Why conduct an implementation pilot study?

Pilot studies are generally conducted with a small sample of intended users in real-world conditions to test the feasibility of implementing a new initiative and the likelihood of reaping its benefits at scale. A well-developed initiative that is ready for an implementation pilot has all the materials needed for implementation, including training materials and trainers available to those who are implementing. A pilot study is useful when stakeholders want to understand how well an initiative integrates into existing infrastructure and programming to make decisions about whether to continue or possibly expand its use. By pilot-testing on a small scale, decisionmakers can identify what modifications, conditions, and supports are necessary for implementing the initiative on a larger scale (for example, additional training support or more detailed instructional materials).[2] This pilot study process provides decisionmakers with data representing actual user experiences that help inform how they might proceed with scaling up an initiative. Pilot studies can vary in how long they take, depending on the nature of the initiative being studied. For a smaller initiative, such as a short-term teacher training program, a pilot may be conducted in a few months, whereas studying an-depth instructional intervention may take a full school year.

In K–12 education, implementation pilot studies can answer a variety of questions about implementation in a given context. These questions will vary based on the goals of stakeholders like TDOE and district staff. The goals for a pilot study represent what they hope to learn about an initiative's implementation and potential for scaling up. Typical goals and pilot study questions focus on an initiative's acceptability, implementation, practicability, adaptation, and integration (table 1). For example, one goal of a pilot study could be to determine the likelihood that teachers will accept the initiative, answering questions about teacher perceptions of the initiative's fit with student needs. Another goal might be to examine whether the initiative is practicable to implement in a given context, answering questions about whether teachers have the time, support, and resources needed to implement the initiative. The pilot study might focus

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[2] Scaling up districtwide or statewide can be done all at once, or on a staggered schedule over time.

on one goal or several depending on the information needed to guide decisions about scaling up an initiative.

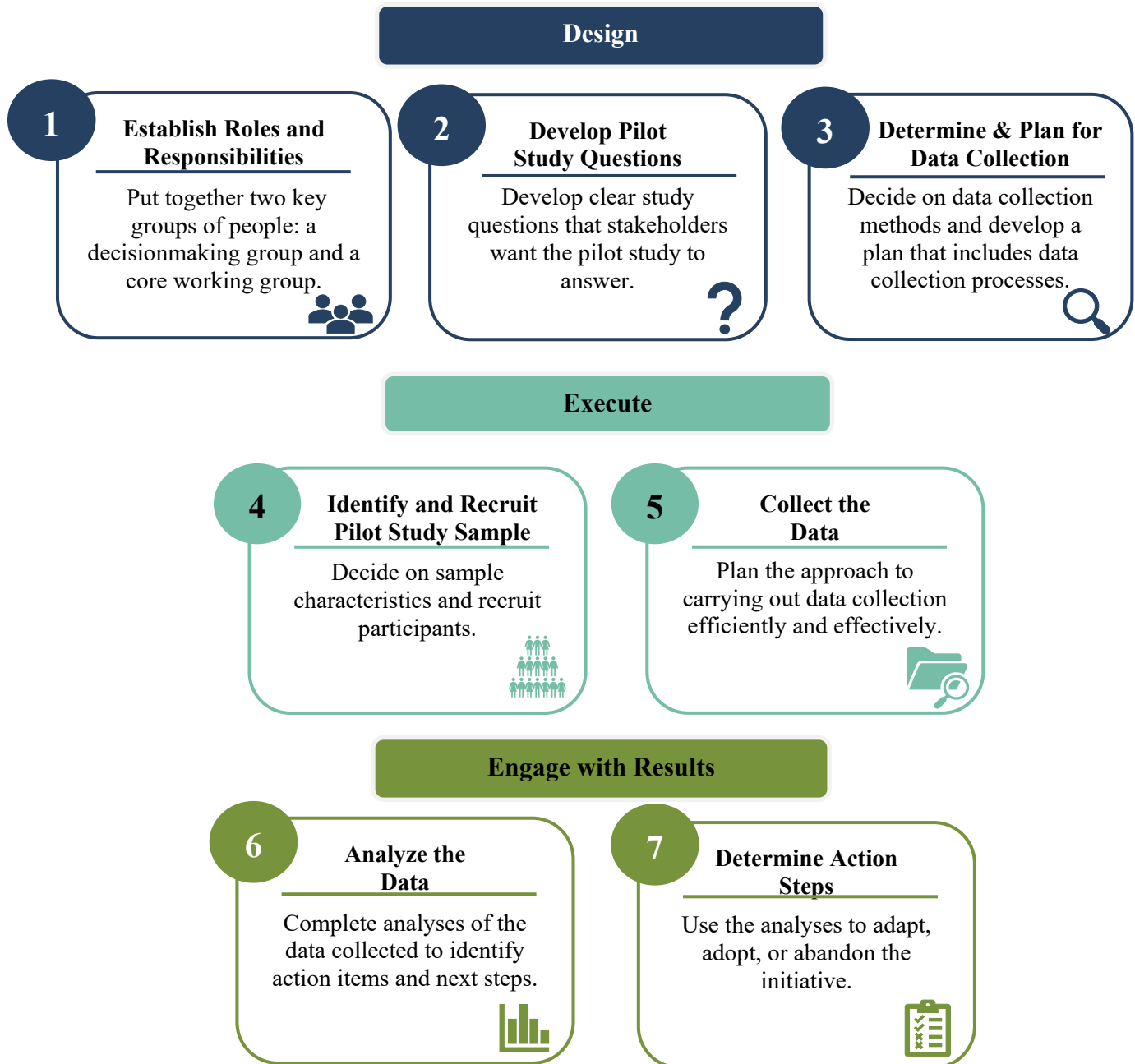Table 1. Example implementation pilot study questions by goal

Implementation Pilot Study Goals	Example Questions
Acceptability: Likelihood targeted individuals or organizations will accept the new initiative.	Do teachers see the potential value in the initiative; that is, are they willing to introduce the instructional changes the initiative would require? Do teachers perceive the initiative as appropriate for helping students improve their literacy skills?
Practicability: Availability of necessary resources for the new initiative.	Is the initiative feasible to implement? Do teachers have the time, organizational supports, and technology for implementing the initiative?
Implementation: How targeted individuals or organizations execute the new initiative.	Do teachers have the knowledge and skills to implement the initiative as intended? If not, what additional professional learning support do they need? Have teachers implemented the initiative as intended? If not, why not? How does implementation vary based on specific contextual factors and characteristics?
Integration and Adaptation: How the new initiative may need to change to fit the current setting and the extent of changes needed to incorporate a new initiative into existing procedures or infrastructure.	What are the barriers to implementing the initiative as intended? How have teachers adapted the initiative for use in the classrooms? What conditions support implementing the initiative as intended?
Evaluation planning: Usefulness of data collection instruments and measurement procedures.	Did the data collection instruments for the pilot study generate useful and interpretable findings? How could the instruments be improved for use in a large-scale evaluation?

Design and Execute an Implementation Pilot Study

TDOE stakeholders may want to design and carry out an implementation pilot study for new or updated initiatives that may be useful statewide. For example, the planned implementation pilot study of the Response to Instruction and Intervention (RTI^2) tool could have been helpful in supporting districts' efforts to strengthen literacy practices. Before designing and carrying out an implementation pilot, it is important for TDOE to identify an intervention or initiative that is planned and ready for local use.

Once TDOE and district stakeholders have identified the initiative they want to study in an implementation pilot, there are seven steps for designing, implementing, and using the resulting data (figure 1). These steps are clustered into three broader phases: design, execute, and engage with results. The design phase involves creating a larger decisionmaking group to help guide the process, identifying a smaller core working group to design and implement the pilot study, and developing a timeline to ensure that the study can be implemented within the proposed timeframe. During the design phase, the core working group, in consultation with the decisionmaking group, will develop the implementation pilot study questions, decide on data collection methods, and develop a plan that includes data collection processes. During the execute phase, the core working group will identify the pilot study sample in consultation with the decisionmaking group, recruit participants, and collect the data. The final phase involves engaging with the results by having the core working group analyze the data and facilitate a data-driven discussion with the decisionmaking group to determine action steps regarding the initiative under examination. For each step, this document provides guidance, tips, and resources for carrying out these activities in your own work. The core working group can use appendix A as a checklist to track progress on the seven steps over the course of the implementation pilot study.

Figure 1. Steps for designing and executing an implementation pilot study

Design

1 — **Establish Roles and Responsibilities**

Put together two key groups of people: a decisionmaking group and a core working group.

2 — **Develop Pilot Study Questions**

Develop clear study questions that stakeholders want the pilot study to answer.

3 — **Determine & Plan for Data Collection**

Decide on data collection methods and develop a plan that includes data collection processes.

Execute

4 — **Identify and Recruit Pilot Study Sample**

Decide on sample characteristics and recruit participants.

5 — **Collect the Data**

Plan the approach to carrying out data collection efficiently and effectively.

Engage with Results

6 — **Analyze the Data**

Complete analyses of the data collected to identify action items and next steps.

7 — **Determine Action Steps**

Use the analyses to adapt, adopt, or abandon the initiative.

How long it takes to conduct an implementation pilot study depends on many factors, including approval processes; how much time is needed to implement the initiative; staff availability for critical meetings to devise study questions and determine action steps; the size of the group needed to reach consensus on different aspects of the implementation pilot study, such

as a logic model; and whether data analysis occurs in-house or is contracted to a consultant. It is important to consider these factors when developing a timeline for designing and implementing a pilot study.

This resource illustrates each step of the implementation pilot study process with a hypothetical example of how pilot studies can work in practice.[3] Our example—Coaching to Improve Reading Comprehension for Learners of English (CIRCLE)—is based on the type of initiative TDOE might use to improve reading outcomes for English learners. CIRCLE and its procedures are described in accompanying light blue boxes throughout this resource. An overview of CIRCLE is found below (box 1).

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[3] This resource includes a hypothetical example because TDOE was unable to complete all the steps of the RTI[2] implementation pilot study due to COVID-19 school closures.

Box 1. Coaching to Improve Reading Comprehension for Learners of English (CIRCLE)
Program Description

Coaching to Improve Reading Comprehension for Learners of English (CIRCLE), a hypothetical statewide coaching initiative, is designed to improve teachers' delivery of effective reading comprehension strategies to English learner students in grades 3 through 12. SEA reading experts and English learner specialists developed the initiative by drawing from research-based practices. The SEA coordinates delivery of the coaching program through trainers in the state's regional service centers. Regional trainers train district instructional staff to become district CIRCLE coaches, who then deliver the CIRCLE coaching model to teachers in their district. The CIRCLE teacher coaching takes place over a six-month period and includes four components:

1. **In-person training**
   o Two days of in-person teacher training on reading comprehension development for English learner students (conceptual focus to increase teacher content knowledge).
   o Two days of in-person teacher training on the delivery of CIRCLE reading comprehension strategies (pedagogical focus to increase teacher instructional skills).
2. **Modeling**
   o District CIRCLE coaches model delivery of CIRCLE reading comprehension strategies with students.
3. **Observational feedback**
   o District CIRCLE coaches observe teacher delivery of CIRCLE reading comprehension strategies and provide formative feedback for improvement.
   o Teachers are observed four times during the six-month coaching period.
4. **Ongoing coaching support**
   o District CIRCLE coaches provide ongoing coaching support to teachers through monthly videoconferences.

The SEA developed the CIRCLE program with input and review from multiple stakeholders. Before implementing this new, "untested" program across the state, the SEA knew it would be helpful to conduct a pilot study with a smaller group of districts or schools to learn about implementation. Pilot study results would inform the SEA's decisions about moving forward with the initiative as planned, making modifications, or ceasing implementation. The SEA believed that investing in a pilot study would allow it to identify and mitigate implementation challenges on a small scale and make modifications to avert challenges during statewide implementation. This would lead to more efficient use of time and resources during the full implementation.

Step 1: Establish roles and responsibilities for the implementation pilot study

Many individuals contribute to the decision to pursue an implementation pilot study, the development and implementation of a pilot study, and the identification of next steps after learning about the pilot study results. Consider two key groups of people: (1) a **decisionmaking group** that is responsible for making program and policy decisions and that will use the results of the implementation pilot study, and (2) a **core working group** that is responsible for designing and implementing the pilot study.

The **decisionmaking group** decides whether to allocate resources to the implementation pilot study and approves staff time to conduct it. This group also sets the purpose of the pilot study and uses its results to inform decisionmaking. The members of the decisionmaking group are, for example, executive and senior leadership of the SEA and board members responsible for improving the education system and student outcomes. Decisionmaking group members might include education agency leaders who can encourage participation in the implementation pilot study, conveying how participation can help improve policy and practice for educators and students. This

Decisionmaking group

- Decides whether to invest in the pilot study.
- Sets the purpose for the pilot study.
- Uses the results to inform decisionmaking.
- Can include education agency leaders and program directors who are responsible for implementing an initiative.

group might also include program directors responsible for implementing an initiative. In the case of the TDOE RTI[2] implementation pilot planning process, the decisionmaking group included senior leaders such as the chief of strategy and data and the director of research and evaluation.

After the decisionmaking group decides to pursue an implementation pilot study, it is important for the team to assemble a **core working group** of people who have time available to lead the day-to-day project activities, including project management for a pilot study. This core

working group is involved in developing a project timeline, formulating study questions to be addressed in the pilot study, creating data collection instruments, collecting and analyzing data, and helping incorporate pilot study results into initiative revisions. Members of the core working group who bring technical and content expertise, such as some familiarity with research design, instrument design, and sampling, are critical for conducting an implementation pilot study. In the case of the TDOE RTI[2] implementation pilot planning process, the core

Core working group

- Leads the day-to-day management of the pilot study, including:
  o Formulating study questions.
  o Creating data collection instruments.
  o Collecting and analyzing data.
- Can include education agency program office staff and research and evaluation staff.

working group included staff from both the research office and program offices that are responsible for RTI[2] implementation.

When determining membership of the core working group, the decisionmaking group should consider factors such as the expertise needed, availability during the timeframe of the implementation pilot study activities, and the resources allocated to the implementation pilot study. The group might also consider the extent to which they need key influencers to support decisions about scaling once the pilot is completed. The core working group might include program office staff with relevant content expertise and a strong understanding of the intended users or implementers of an initiative. Program staff can contribute information about how the initiative fits within the existing local context, offer insight into factors that may influence key stakeholders' buy-in of an initiative, facilitate pilot study recruitment, and determine the timeline for data collection to ensure it accommodates school schedules.

Integral members of a core working group include research and evaluation staff who have experience collecting data and understand research methodology, data, and analysis to support the design and execution of the implementation pilot study. Research and evaluation staff members can help refine key questions of interest into feasible study questions that can be answered within the scope of an implementation pilot study; support recruitment of pilot study participants by working with program office staff; bring expertise on sampling and instrument

(survey and interview protocol) development; collect pilot study data (such as administering surveys and conducting focus groups and interviews); and analyze and interpret data. To oversee design and implementation of the pilot study, TDOE's research office can identify a pilot study lead with appropriate technical research skills and capabilities.

The core working group will articulate its own roles and responsibilities as well as those of the decisionmaking group to promote clear communication. For example, the core working group may be responsible primarily for designing and implementing the pilot study and working with decisionmakers to use the results to determine next steps. An example of this process is illustrated through our CIRCLE example below (box 2).

As the core working group identifies roles and responsibilities, such as the development of data collection instruments and analysis of quantitative data, it may determine that it needs an external consultant or organization to complete the implementation pilot study. Organizational needs for external assistance will vary, and TDOE or other Tennessee organizations carrying out the pilot will need to find the right support to meet their needs. For example, a consultant might support specific parts of the project (such as facilitating focus groups, project management, or data analysis).

External consultants

Considerations for whether to engage outside consultants in the pilot study include:

- Identifying points in the process when outside expertise would strengthen the study.
- Assessing staff capacity, including availability, time, and resources for each step of the process, to determine where the agencies may need additional support.

Box 2. Establish Roles and Responsibilities for the CIRCLE Pilot Study

The CIRCLE pilot study requires support and engagement from a group of key decisionmakers and a core working group. To promote clear communication about roles and responsibilities of contributing members, the core working group organized this information in the following table and shared it with the decisionmaking group.

	Members	Role	Pilot Study Responsibilities
Decision-making group	SEA reading director	Decisionmaker	• Oversee and direct for the CIRCLE pilot study • Authorize CIRCLE program revisions based on pilot study results • Determine direction and recommendations for scale-up
	SEA teacher quality manager	Decisionmaker	
	SEA English learner director	Decisionmaker	
	Director of regional service providers	Decisionmaker	• Oversee CIRCLE trainers during pilot study implementation • Review pilot study results and contributes to recommendations for program revisions • Contribute to recommendations for scale-up
	Curriculum directors from three districts	CIRCLE users	• Represent district and teacher voice in the pilot study • Provide feedback on study design, data collection methods, and results • Contribute to recommendations for program revisions and scale-up

	Members	Role	Pilot Study Responsibilities
Core working group	Regional service providers	CIRCLE regional trainers	• Recruit district coaches and teacher participants • Train district coaches • Conduct teacher observations with district coaches • Provide ongoing support to district coaches • Participate in pilot study data collection
	SEA research staff	Pilot study managers	• Design and implement the pilot study • Develop data collection instruments • Collect and analyze pilot study data • Prepare and present results to stakeholders • Support use of results to revise CIRCLE for scale-up
	CIRCLE program developer	Program specialist and content expert	• Contributes to pilot study design and instrument development • Monitors CIRCLE delivery and supports CIRCLE regional trainers during implementation • Helps present results to stakeholders

Step 2: Develop implementation pilot study questions

The information gleaned from an implementation pilot study will derive from the questions asked. Therefore, when designing a pilot study, you must identify specific questions you and your stakeholders want answered. The number of study questions will depend on what stakeholders want to know and the capacity of core working group members to execute the implementation pilot study. These questions will guide the decisions you make throughout the pilot study, including:

- Choosing the most efficient way to collect data that are already available.
- Developing or selecting instruments to collect new data.
- Selecting the appropriate analytic approach.
- Communicating results in a way that decisionmakers can use.

Using an initiative's theory of change to develop study questions

When developing your implementation pilot study questions, start by understanding how the initiative is theorized to work for the intended audience. A theory of change articulates the expectations of how and why an initiative's activities lead to specific outcomes. Typically, a logic model graphically depicts a theory of change by representing relationships between an initiative's inputs, activities, outputs, and outcomes (see the "Logic model resources" box below and appendix B for more information on logic models). Developers of well-designed initiatives often provide a clearly articulated theory of change with their programs.

A theory of change articulates:

- What you do,
- Whom you do it for,
- How you do it,
- What outcomes you expect to achieve, and
- Why you expect to achieve those outcomes.

> **Logic model resources**
>
> The initiative you are investigating may already have a logic model from the developer. If it does not, the core working group can create one. Here are two high-quality resources to help guide logic model development:
>
> REL Pacific. *Education Logic Model (ELM) Application*. https://ies.ed.gov/ncee/edlabs/regions/pacific/elm.asp
>
> Shakman, K., & Rodriguez, S. M. (2015). *Logic models for program design, implementation, and evaluation: Workshop toolkit* (REL 2015–057). U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Northeast & Islands. https://ies.ed.gov/ncee/edlabs/projects/project.asp?ProjectID=401

The theory of change can be a useful starting point for developing study questions that ensure you achieve your study goals. For example, if one of your pilot study goals is to determine whether the initiative is practical to implement in your local context, you might develop a question about the adequacy of the resources (inputs in your logic model) to support the activities identified in the logic model. If your goal is to examine quality of implementation, you might develop questions about whether teachers engage in practices that are aligned with those specified in the logic model. If your goal is to plan for a future impact evaluation of the initiative, you might develop questions about whether implementation provides the needed data and whether the instruments adequately measure outcomes articulated in the logic model. An example of this process using the CIRCLE example is found below (box 3).

What are characteristics of good implementation pilot study questions?

A good implementation pilot study question has the following characteristics:

> **Checklist for study questions**
>
> ✓ Aligns to the theory of change
> ✓ Is clearly focused and specific
> ✓ Addresses information needs
> ✓ Is answerable in the study timeframe
> ✓ Is reasonable and appropriate

- The question aligns to an initiative's theory of change and, therefore, measures the implementation of activities depicted in the initiative's logic model.
- The question is specific, in that it focuses on an important component of the intervention and identifies

the outcome of interest in a quantifiable way. For example, for a teacher professional learning initiative, a question might examine how teachers participate by asking how many training events teachers attended and how many hours of training they received.

- The question addresses the information needs and priorities of those who will use the answers to inform the next steps in the implementation. For example, a question might focus on the resources and supports a district needs to allocate to ensure teachers are able to participate in training events. The study's results can inform budgeting for substitute teachers or other approaches for structuring professional development time to enable teachers to attend necessary trainings.

- The core working group can answer the question within the timeframe specified for the implementation pilot study. That is, the plan provides for data access or collection and analysis within the time allotted for the study.

- The question is reasonable and appropriate: staff have the time, capacity, and resources for the data collection and analyses required to answer the question.

Engaging the decisionmaking group in developing the study questions
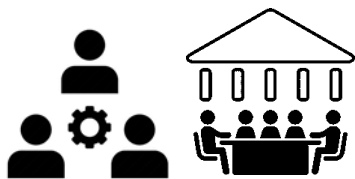
Engagement from both the core working group and decisionmaking group when developing study questions will ensure that the questions are feasible to answer with reliable and valid data and that the results from the implementation pilot study can inform decisionmaking. Start by having core working group members discuss goals for the implementation pilot study and brainstorm questions of interest. During this process, array similar questions together. Then, organize them by hierarchy—that is, by overarching and supporting questions. At this point, you may have more questions than you can realistically answer, so prioritize them in order of importance, consider which are feasible to answer with valid and reliable data, and determine an appropriate number. Once the core working group agrees on a set of questions, seek review and input from the decisionmaking group to ensure that the implementation pilot study addresses decisionmakers' priorities. Remember: these questions drive every subsequent step of the study, so it is essential to take the time to get buy-in.

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Box 3. Specifying CIRCLE Pilot Study Questions

The core working group for the CIRCLE pilot study drafted the following pilot study questions based on its goals for the study. The group sought input from the decisionmaking group on these questions to ensure that the pilot study would yield the information that would inform decisions to scale up CIRCLE across the state.

Note: For illustrative purposes, example questions are provided for each type of pilot study goal. An actual program might not have questions applicable to each goal.

Pilot Study Goals	Pilot Study Questions
Acceptability	• Do CIRCLE coaches see the value and need for the coaching model in their district? • Do CIRCLE teachers believe the CIRCLE strategies have the potential to improve English learner reading comprehension?
Implementation	• How often did coaches observe teachers? • To what extent did teachers implement the CIRCLE reading comprehension strategies with English learners? • How long were participating students exposed to CIRCLE reading comprehension strategies? Did teachers believe this was sufficient time to improve their learning?
Practicability	• How many teachers can district CIRCLE coaches feasibly support? • What resources and support do district CIRCLE coaches need to deliver coaching to teachers?
Adaptation & integration	• Did teachers modify the strategies, and if so, how? • To what extent do CIRCLE coaches consider the required number of teacher observations and videoconferences sufficient for meeting teachers' needs? • What supports does the school need to provide so CIRCLE teachers can participate in coaching activities and CIRCLE implementation?
Evaluation planning	• What types of student data are available and appropriate to measure student outcomes? What are limitations in data availability and quality? • How could the teacher observation forms be improved for future data collection efforts? • Would teacher-level random assignment be possible in a future outcome study?

Step 3: Determine methods and plan for data collection

Identify information needed to answer study questions

The core working group's first step is to identify the key concept(s), or the main piece of information needed to answer each study question. Once the group has clearly identified the desired information, think about who (for example, teachers, administrators, school leadership teams, or district trainers) or what source (such as administrative data) can provide that information. The group can investigate whether this information already exists or whether the implementation pilot study will need to include primary data collection. Start by listing the types of data TDOE, Tennessee schools and districts, or other relevant groups (for example, the Tennessee Higher Education Commission, or regional foundations) may have available to answer each question (such as administrative records or program implementation data), as well as any gaps you need to fill. If new information is required, the core working group can consider the time and capacity needed to capture data, and whether an internal team can collect this information or whether it would be necessary to partner with an outside organization.

If you require new data collection to complete the pilot, the core working group can identify from whom specifically to obtain the necessary information. For example, if the group wants to understand the teacher knowledge and skills a new math program requires, it may want to collect information from program designers and a small group of district trainers who are responsible for preparing teachers to implement the program. Further, teachers can share their perceptions of whether they have the appropriate skills or need additional professional development to implement the new program. Alternatively, if the core working group wants to understand whether Tennessee schools and districts implement a program as the developers intended, it could consider collecting information from administrators who are responsible for providing guidance to their school staff about how to implement the program, district curriculum supervisors who determine what information will be covered and how to present it, and teachers who implement the program. The group may also consider collecting data from multiple sites to see how initiative implementation might vary by different contextual factors, such as school size.

> **Organizing information needed to answer research questions**
>
> Once the core working group has developed the study questions that will guide the pilot study, it can create a matrix identifying possible sources of the information necessary to answer each question. An example matrix and template is in underlined appendix C.

Decide on appropriate data collection methods

After reaching consensus on the types of respondents necessary to answer the study questions, the core working group can decide how best to collect the data. Multiple data collection methods are available—including surveys, qualitative interviews, focus groups, and observations—and the group can choose to use several methods during the study. For example, TDOE core working group members proposed to use surveys to gather information about individuals' perceptions of the process for completing the RTI[2] implementation assessment tool and focus groups to learn more about challenges to completing the tool and how school teams might use the results from the tool. Table 2 highlights the data collection methods the TDOE group selected when planning the RTI[2] implementation assessment tool pilot study.

When deciding which data collection methods to use, the core working group may consider the **utility** and **feasibility** of different methods. **Utility** refers to what is most appropriate for the type of data needed, and **feasibility** refers to what is most appropriate given constraints such as cost, resources, staff capacity, and time. The group may also consider how it will develop any data collection instruments when considering the utility and feasibility of different methods. Instrument development can be complex and require substantial time, even if based on already existing measures. Even the best measures may not capture all relevant information about implementation, and so open communication with implementers is vital. See appendix D for more information on developing instruments or protocols for different types of data collection. In addition to drafting or identifying existing data collection materials, the group will also need to develop informed consent materials and procedures for obtaining participant consent.

Figure 3 highlights questions to consider about data collection methods, and table 2 describes considerations and resources necessary for different types of data collection to guide the group's

thinking. The table can be printed to reference during discussions. Box 4 provides an example of the data collection decisionmaking process.

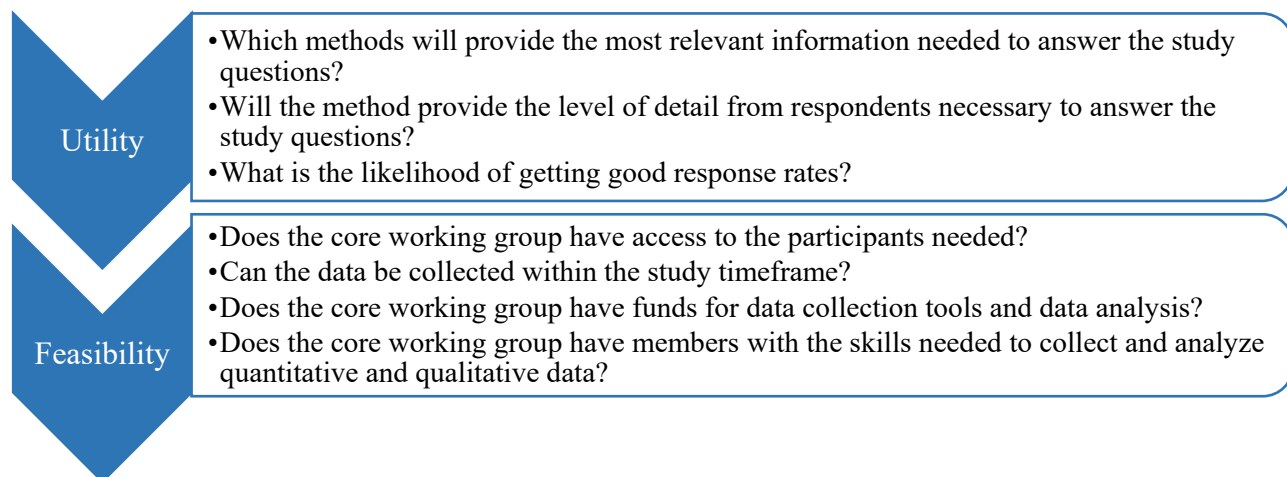Figure 3. Questions to consider when choosing data collection methods

Utility
- Which methods will provide the most relevant information needed to answer the study questions?
- Will the method provide the level of detail from respondents necessary to answer the study questions?
- What is the likelihood of getting good response rates?

Feasibility
- Does the core working group have access to the participants needed?
- Can the data be collected within the study timeframe?
- Does the core working group have funds for data collection tools and data analysis?
- Does the core working group have members with the skills needed to collect and analyze quantitative and qualitative data?

Table 2. Description of data collection methods, considerations, necessary resources, and TDOE example

Method	Considerations	Necessary Resources	TDOE Example

Survey	• Surveys can be an efficient way to gather information from large groups of people.
	• Surveys can be less time- and labor-intensive than other methods of data collection, and they typically make it easier to aggregate findings across multiple respondents.
	• Survey administration may require additional follow-up from the core working group, to ensure high survey completion rates.
		• The core working group needs time and technical capacity to:
		  - Develop/find appropriate survey items
		  - Program the survey (if electronic)
		  - Administer the survey
		  - Engage in necessary follow-up to ensure adequate completion rates
		  - Securely store data
		  - Conduct necessary analyses.
		• Electronic surveys (for example, Qualtrics or SurveyMonkey) require software to program the survey and, in some cases, to send the survey to participants.
			Online participant survey (20 minutes) focused on the following topics:
			
			• RTI^2 role and responsibilities
			• Role in completing the tool
			• Time invested in completing the tool
			• Perceptions of tool completion process
			• Perceptions of ease of use and utility
			• Additional supports needed (school, district, regional)
			• Suggestions for improvement

Method	Considerations	Necessary Resources	TDOE Example
		• Both paper and electronic surveys may require a platform or database to enter and/or store the survey data.	
Qualitative interviews	• Qualitative interviews can provide more nuanced contextual information that leads to a deeper understanding of survey findings. • Qualitative interviews can be done virtually or in person, depending on the core working group's resources and capacity.	• Interviews are typically more time-consuming and labor-intensive than surveys, especially if conducted in person. • It is preferable to have two interviewers: one to facilitate the interview and the other to take notes. • The core working group will need access to recording equipment if it elects to record the interviews. • If the core working group records the interviews, it can use a service to transcribe the recordings. • The core working group needs to choose a program and/or database with which to store and analyze the interview data (for example, data can be stored on SharePoint and analyzed on Dedoose).	RTI^2 coordinator interview (40 minutes) to collect information about: • Timeline, order of completion of tool • Number of meetings, time spent to complete the tool • Role in tool completion • Perceived support needs • Perceptions of the value of the process and results • Suggestions for improving the completion process • How the districts may use results • Alignment to other tools used by the school/district
Focus groups	• Focus groups are useful for obtaining perspectives from different members of a specific group or role (for example, principals, district coordinators, etc.). • Focus group leaders can probe responses with follow-up questions and encourage participants to reach a consensus on topics of interest. • Consider the number of participants to include in focus groups to ensure they are manageable and useful; focus groups for the purposes of an	• Focus groups are typically held in person, which requires the core working group members to travel. • It is preferable to have two interviewers: one to facilitate the focus group, the other to take notes. • The core working group will need access to recording equipment if it elects to record the focus groups. • If the core working group records the focus groups, it may choose to use a service to transcribe the recordings, which can help	RTI^2 team focus group (1 hour) to collect information about: • The team's process for completing the tool • Barriers/challenges to completing the tool • Aspects that promote ease of use • Value for the time and effort • Perceptions of the value of the process and results • Suggestions for improving the completion process

Method	Considerations	Necessary Resources	TDOE Example
	implementation pilot study typically comprise five to eight participants.[4] • Topics that are sensitive in nature may not be well suited for a focus group, since participants may be uncomfortable discussing their thoughts or opinions in front of others.	the group analyze the data systematically and objectively. • The core working group needs to choose a program and/or database with which to store and analyze the focus group data.	• How the team might use the results
Observations	• Observations can yield insight into how an initiative is carried out in practice. • Structured observations typically list a specified set of items, which allows data to be aggregated across observations. • Unstructured observations can produce rich, detailed information on how the initiative is carried out under different circumstances.	• Observations are almost always done in person, which is likely to require core working group members to travel. • Depending on the scope and duration of the implementation pilot study, the core working group can train local data collectors to conduct observations, which can reduce the group's amount of travel. • The group needs to train observers, set a reliability threshold, and implement a process for ensuring that observers are meeting reliability standards. • The group needs to choose a program and/or database with which to store and analyze observation data (for example, QuickBase).	TDOE chose not to collect observation data due to time and resource constraints.

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[4] Krueger, R. A., & Casey, M. A (2014). *Focus groups: A practical guide for applied research* (5th ed.). SAGE Publishing.

Plan for data collection

After selecting the most appropriate data collection methods, the core working group needs to outline its plan to realize them. Preparing for data collection will require the group to coordinate with the appropriate state, district, or school staff to ensure each data collection method meets privacy protection and secure data-storage requirements. If a core working group plans to coordinate data collection without support from an outside organization or agency, it is important that team members understand informed consent, confidentiality, data security, and other elements of the data collection process.

> **Developing a data crosswalk**
>
> Once the core working group has drafted data collection protocols, group members may decide to create a "data crosswalk" to map the questions from the protocols (for example, the survey or interview questions) onto the study questions. This can help the team ensure the study includes sufficient data collection to answer each research question. A sample data crosswalk is found in <u>appendix E</u>.

The core working group can determine the timeline for data collection activities and ensure that it accommodates school schedules (for example, winter/spring breaks and testing windows). *Before* recruitment of the pilot study sample begins, the pilot study lead can ensure that the necessary parties within the SEA or LEA, such as an internal committee or the commissioner, and perhaps an Institutional Review Board (IRB) reviewed and approved all implementation pilot study materials and processes. It is important that all group members receive any necessary training, such as training on conducting human subjects research, prior to the start of data collection. Consider consulting existing resources that provide important information on research ethics and compliance (see the "Data collection ethics training resources" box below).

> **Data collection ethics training resources**
>
> - Collaborative Institutional Training Initiative (CITI) Program Research Ethics and Compliance Training: https://about.citiprogram.org/en/homepage/
> - National Institutes of Health (NIH) Research Ethics Training: https://researchethics.od.nih.gov/
> - Johns Hopkins School of Public Health (JHSPH) Human Subjects Research Ethics Field Training Guide: https://www.jhsph.edu/offices-and-services/institutional-review-board/training/jhsph-human-subjects-research-ethics-field-training-guide.html

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Box 4. Determining the Data Collection Methods

The core working group for the CIRCLE pilot study met to identify the information needed to answer the pilot study questions, sources for that information, and the most appropriate and feasible methods for collecting each type of data from the information sources. The group also considered time and resource availability for data collection. After considering these multiple factors, the group selected a mix of qualitative and quantitative data collection methods.

Pilot Study Questions	Information Needed	Information Source	Data Collection Method
Do CIRCLE teachers believe the CIRCLE strategies have the potential to improve English learner reading comprehension?	Perception data	CIRCLE teachers Principals	Interviews Survey
Do coaches believe the CIRCLE program provides the professional learning support teachers of English learners need?	Perception data	CIRCLE coaches	Interviews
To what extent did teachers implement the CIRCLE reading comprehension strategies with English learners? Did they modify the strategies, and if so, how?	Implementation data	CIRCLE teachers CIRCLE coaches	Interviews Survey Observations
What resources and support do district CIRCLE coaches need to deliver coaching to teachers?	Program resources and supports	CIRCLE coaches CIRCLE regional trainers	Interviews
Do teachers need more support or additional training than what coaches provided?	Teacher knowledge and skills	CIRCLE teachers Principals CIRCLE coaches	Survey Interviews
What supports does the school need to provide to CIRCLE teachers to participate in coaching activities and CIRCLE implementation?	School-level supports	CIRCLE teachers Principals CIRCLE coaches	Survey Interviews
How could the teacher observation forms be improved for future data-collection efforts?	Observation records	CIRCLE teachers CIRCLE coaches Observation data	Interviews

Note: For illustrative purposes, the list of pilot study questions are abridged.
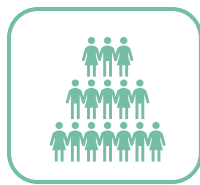
Step 4: Identify and recruit the implementation pilot study sample

At this point in the planning process, the core working group identified study questions, information sources for answering the questions, and methods for collecting the necessary data. The steps below outline a process for identifying and recruiting the sample of participants to take part in the implementation pilot study. By considering the entities—for example, districts or schools—that are already willing or planning to implement the initiative and including participants from that pool in the sample, the core working group can more efficiently recruit the implementation pilot study sample. The decisionmaking group may be able to support with site selection by encouraging participation in the pilot study.

Identify the implementation pilot study sample

When working to identify the implementation pilot study sample, the core working group can draw from its discussion in Step 3 on potential information sources, specifically the ones respondents needed to answer the study questions. When determining potential pilot study participants, the group can seek to answer the following questions:

- What are the characteristics of study sites (for example, school size, proportion of students receiving free- or reduced-price lunch) that will provide the most relevant information on the feasibility of implementing the initiative?
- What is a feasible sample size for the different data collection methods?

Study site characteristics of interest

It is important for the core working group to start recruiting pilot study sites by identifying participant characteristics that will provide information on the feasibility of implementing the chosen initiative. You cannot test all possible situations, so it is important to consider which characteristics are more likely to affect implementation and make sure you include participants with those characteristics in your sample. Having the decisionmaking group weigh in on whether the sample adequately captures all characteristics of interest helps ensure that all team members

will be comfortable using the findings from the study to determine next steps for the initiative. For example, for a school-level initiative, smaller schools might have different resources from large schools, which might result in different implementations. Therefore, the core working group at an SEA might decide that school size is a characteristic of interest and propose to include both small and large schools in its pilot study sample to achieve a more complete picture of implementation. A large district might select schools with low, average, and high percentages of students receiving free- or reduced-price lunch to determine feasibility across the diverse communities it serves.

After discussing potential characteristics of interest, the group can start narrowing its list by reviewing relevant research literature to identify the two or three key characteristics most likely to result in the greatest variation in implementation of the initiative. Gathering information on variations in implementation will result in the most robust view of potential strengths and limitations of the initiative, which can in turn inform any necessary modifications.

Feasible sample size

In an implementation pilot study, a statistical sample-size *calculation* is typically not necessary because the study questions are designed to understand factors impacting implementation of the intervention, rather than systematically test a hypothesis. If the core working group does not conduct a sample-size calculation, it can be helpful for the group to develop a sample-size *justification* to explain how the planned sample size for each data collection method is sufficient to answer study questions while being feasible given the resources allocated to the pilot study. When thinking through its sample-size justification, the group can consider its capacity and resources to carry out recruitment and data collection, particularly for methods that require greater staff time or travel. The group might identify a larger sample for less time-consuming and resource-intensive data collection efforts, such as a survey, but might consider identifying a representative subset of the larger sample for more demanding efforts, such as interviews, observations, or focus groups. If the core working group decides to identify statistically significant differences between groups of participants, such as differences in implementation or attitudes toward the intervention, it may elect to use a sample-size calculation,

in which case members with a strong statistical background can conduct the calculations or the group can enlist the assistance of a consultant.

> **Organizing sample information using a sampling matrix**
>
> After the core working group identifies the characteristics of interest, a feasible sample size, and potential implementation pilot study sites, it can create a *sampling matrix* to organize this information visually. A sampling matrix is a table with the characteristics of interest serving as the row and column headers and the table cells specifying the number of participants to fall under each set of characteristics to ensure a manageable sample size. Two example sampling matrices are in **appendix F**. The group need not recruit an implementation pilot study sample that fully aligns with the sampling matrix. Instead, it can use the sampling matrix to guide its thinking on ways to focus its recruitment efforts on the goal of capturing information on how participants with characteristics of interest implement the initiative.

Recruit the sample

After identifying characteristics of interest and potential sites, the core working group can begin recruiting participants. The group may develop recruitment materials, such as a flyer with relevant information about the implementation pilot study, to share with their contacts and potential participants. The group may also consider the most appropriate person to do the initial outreach—that is, someone with existing relationships with the districts or schools (even if they are not part of the core working group). The group may want to identify a point of contact within its membership to handle follow-up and coordination with potential participants.

Obtain consent and orient participants to the implementation pilot study

Once the group recruits the implementation pilot study sample, the next step is to obtain participants' informed consent to participate in the pilot study, which may require informational sessions that describe what participation in the study entails. It is important to draft informed consent forms at the same time as other data collection materials and make sure they are approved by any necessary parties, such as an Institutional Review Board (IRB). Obtaining participant consent requires careful planning and monitoring to ensure that pilot study participants are aware of their rights as research participants and that their participation is voluntary.

After participants have provided consent, the core working group will need to conduct trainings to inform participants about the implementation pilot study, including what their participation might entail with respect to time commitments to complete surveys or participate in focus groups. Leaders within the SEA or local education agency (LEA), such as the director of the research department, may need to review the training materials focused on the implementation pilot study. When scheduling the orientation and trainings, the group can seek a time that is as convenient as possible for participants (for example, providing trainings to teachers on designated professional development days) and might consider whether virtual trainings are capable of meeting the training objectives or if in-person training is necessary.

An overview of this step using the CIRCLE example is below (box 5).

Box 5. Identifying and Recruiting the CIRCLE Pilot Sample

The core working group for the CIRCLE pilot study followed the three sub-steps outlined above for selecting a pilot study sample. Members met to discuss the sample and procedures for selecting schools. Recruiting the pilot study participants occurred over the course of two months, with orientations taking place before the start of the school year.

	Identifying and Recruiting the CIRCLE Pilot Sample
Identify the pilot study sample	When considering information sources during Step 3, the core working group identified CIRCLE coaches, CIRCLE teachers, regional trainers, and principals as pilot study participants. The group also determined the pilot would involve regional-, district-, and school-level participants. **Relevant characteristics of interest.** Because the CIRCLE program supports English learner students in grades 3 through 12, the core working group wanted the pilot study to include teachers in elementary, middle, and high schools. They also wanted to pilot CIRCLE in schools identified as needing additional targeted support and improvement (ATSI)[a] based on the performance of their English learner student subgroup. **Feasible sample size.** In reviewing the data collection methods in Step 3, the core working group determined that collecting and analyzing interview and observation data would require more time than using surveys and online implementation logs. Therefore, it decided to collect survey and implementation log data from all participants and interview only a subset of participants. **Potential pilot study sites.** Collecting data from each of the state's eight service regions would require too many staff resources for data collection. Therefore, the core working group narrowed the sample to three regions in the state, one district in each region, and three schools within each district. This resulted in a total of nine schools to recruit for the pilot study.
Recruit the sample	The core working group narrowed the selection pool to districts with ATSI schools at the elementary, middle, and high school levels. The CIRCLE regional trainers had established relationships with the districts in their region, so these trainers called their district points of contact about the pilot study and gave them the group's information sheet about the study. Once the district point of contact identified interested district coaches and schools, the CIRCLE regional trainer held a call with the potential district coaches and principals to discuss the study and ensure everyone was in agreement about expectations for participation.
Obtain consent and orient participants to the pilot study	The CIRCLE trainers and core working group members held onsite orientations lasting three hours in each of the three participating districts. During the orientations, the CIRCLE regional trainer provided an overview of the CIRCLE coaching model, and a research team member presented on the pilot study purpose, timeline, and expectations. All participating pilot study teachers, principals, and district staff to be trained as CIRCLE coaches attended the orientations and signed an informed consent form at the end of the orientation.

[a] ATSI schools have one or more student subgroups performing at or below the 5th percentile of the highest-performing comprehensive support and improvement school in a state.

Step 5: Collect the implementation pilot study data

Data collection can be a significant undertaking that requires careful preparation and coordination, and several activities are crucial for carrying out data collection effectively (box 6).

Whether the core working group is conducting data collection independently or enlisting outside support, checklists outlining each step of the data collection process can be helpful to ensure all group members understand their roles and responsibilities. See appendix G for an example checklist for interview data collection.

> **Collecting implementation pilot study data**
>
> ✓ Develop appropriate processes and procedures.
> ✓ Regularly revisit the data collection plan.
> ✓ Keep lines of communication open.
> ✓ Adhere to state and district requirements for confidentiality and security.

- **Develop appropriate processes and procedures**. It is important that the pilot study lead clearly outline the data collection processes to ensure all members of the core working group are executing study activities consistently. For example, the lead will need to establish a clear process for obtaining and monitoring participant consent for each type of data collection.

- **Regularly revisit the data collection plan.** While the core working group may intend to stick to an outlined data collection plan, group members may need to revisit the plan over the course of data collection and make adjustments. Holding periodic check-ins with the core working group, particularly those involved in data collection, can signal when the group can revise its data collection plan. For example, if schools are closed due to inclement weather the week teacher focus groups were scheduled, the core working group may need to adjust the timeline accordingly by pushing the focus groups back to a later date.

- **Keep lines of communication open.** Promote communication across core working group members and provide study participants with a way to contact the core team with questions or concerns. Schedule periodic core working group check-in meetings and stay in regular contact throughout the study to ensure data collection activities are running smoothly and provide the opportunity to review data collection processes, as necessary. In addition, by giving pilot study participants the opportunity to reach out with questions or concerns, the

core working group can mitigate issues as they arise. Documenting problems encountered throughout the implementation pilot study data collection, such as challenges with connectivity that prevent participants from completing the intervention as intended, can help the group anticipate potential implementation barriers.

- **Adhere to state and district requirements for confidentiality and security.** Follow requirements and best practices for maintaining data security and confidentiality to protect participants' data, particularly any sensitive information.

Data security and confidentiality tips

- Store files containing student names only in secure locations (for example, some organizations use QuickBase or SharePoint for secure data storage).
- **Do not** store files with participant names on a computer hard drive.
- Store forms with data securely (for example, a locked file cabinet).
- Transport completed paper forms securely (for example, do not leave unattended in a car).
- **Do not** send sensitive data over email.
- Create a participant ID that is specific to the study (not an employee ID or other identifiable number) and create a crosswalk that is stored in a secure location separate from where the data are stored.
- Reference participant IDs rather than names in group communications.
- Do not reveal confidential material to unauthorized persons.
- Do not talk about participants in public or with anyone outside the project.

Box 6. Collecting CIRCLE Pilot Study Data

As decided in Step 3, CIRCLE pilot study data included interviews with teachers, principals, district coaches, and regional trainers. The core working group also collected additional data from participating teachers through a monthly online implementation log, observations, and feedback survey. Core working group members developed data collection instruments, including the interview protocols, an online implementation log, and teacher feedback survey, as well as participant consent forms. The observation protocol that CIRCLE district coaches used to observe teachers was already part of the CIRCLE coaching model.

Following instrument development, the core working group identified who would conduct the interviews and administer the online implementation logs and survey. Because of time and resource limitations among the research staff in the core working group, the group determined that the research staff would administer the online implementation logs and teacher feedback survey but would train the CIRCLE regional trainers to conduct the interviews. Training the CIRCLE regional trainers helped build the trainers' capacity to use the interview protocols with future CIRCLE participants. This approach also ensured that CIRCLE regional trainers mastered the tools and processes for collecting feedback to guide improvements, such as modifying program content and delivery following CIRCLE scale-up.

Next, the core working group developed a schedule for the data collection activities and shared it with pilot study participants. In developing the schedule, core working group members considered when CIRCLE district coaches would already be in contact with participating teachers, such as their schedule for conducting teacher observations as part of the CIRCLE program. Coordinating with existing schedules helped reduce the burden on participating teachers' time. The group also considered district testing schedules, holidays, and school closures. Because most questions on the interview protocols and teacher survey required reflecting on the CIRCLE program, these data collection activities occurred at the end of the six-month initiative-implementation period. Teachers also completed online implementation logs once per month during each of the six months of initiative implementation.

Step 6: Analyze the data

Analyzing data is a crucial step for the core working group to determine action items and next steps for the initiative. An SEA or LEA may have in-house data research and analysis staff, as TDOE does, who bring a high level of knowledge about data analysis, or it can solicit help from outside experts to support this work. It is important to keep data analysis manageable while maintaining the core principles of systematic and unbiased analysis. Because a dataset can be sliced in many ways, ensure the analyses you plan to complete will address your study questions and provide the most useful information for decisionmaking. Calculating simple summaries can make quantitative data more easily comprehensible. This can include calculating:

- Averages of responses to survey items,

- Percentages for information focused on completion such as the proportion of teachers who participated in all coaching sessions for an intervention,

- Percentages for accuracy such as the percentage of students who scored proficient on the state reading test, and

- Frequencies for counts such as the number of times a teacher praised students.

Calculations can be made using all available data, data from each site, or data within categories of interest (for example, by teachers, paraprofessionals and aides, and school leaders). For example, if you want to learn what factors influence implementation of the program, consider whether or not you expect implementation to vary by expertise, amount of planning time, and type of site.

One way to review your data as a team is to create data displays. Different data visualization approaches help to convey various aims such as comparing differences between groups or tracking how data change over time. This resource includes some examples of data visualizations that may be well suited to represent different types of quantitative data, such as logs and surveys (table 4).

Table 4. Description of data visualization, purpose, and sample study questions

Data Visualization	Purpose	Sample Study Question
Bar or column chart	Compare differences in data between individuals or groups.	How frequently did each teacher in the pilot complete the implementation log?
Clustered bar or column chart	Compare differences between categories.	How do scores on the district walkthrough climate items compare to scores on the Classroom Assessment Scoring System (CLASS^{TM}) Emotional Support domain?
Stacked bar or column chart	Compare how different groups answered a question with multiple response options.	How prepared did elementary, middle, and high school teachers feel prior to implementing the initiative?
Line graph	Document how data change over time (longitudinal questions).	Did weekly measures of implementation fidelity increase, decrease, or remain stable over the six-week pilot study?

In addition to these visual options for reviewing and analyzing quantitative data, the core working group can use an objective and systematic approach to analyze qualitative data, such as meeting notes and open-response items from surveys. Depending on their availability and capacity, multiple team members can complete qualitative analyses. For example, group members can review interview or focus group transcripts and collaboratively develop a list of themes that seem to come up multiple times and then tag the transcripts with those themes. Team members can count the number of times these themes arise to assess how common or rare they are across study participants. For example, when reviewing student focus group responses regarding a reading intervention, themes might include "materials engaging," "difficulty understanding materials," and "materials not interesting." Involving multiple team members in this process increases validity and accuracy and can alleviate the burden of problem-solving and decisionmaking during analyses. Another way to increase the validity of qualitative findings is to triangulate your conclusions with other data sources. For instance, if your qualitative analysis indicates that students did not find the material engaging, compare this finding with survey data or teacher logs to see if those sources corroborate it. Triangulation is good practice and

particularly critical if only one person is responsible for qualitative analysis. This maintains the objectivity of your qualitative analysis and can limit bias.

The Useful Resources section has several high-quality resources that provide an overview of quantitative and qualitative analysis methods. These guides can support your review and analysis of interview, focus group, and open-ended survey items. An example of the data-analysis stage in the CIRCLE example is provided below (box 7).

Because core working group members may be working on different aspects of data analysis, holding regular team meetings to discuss preliminary findings (including how findings complement or contradict one another and when to recommend additional follow-up analyses) will ensure team members share a common understanding of analyses and how they may need to collaborate with other colleagues. After completing the analyses, the core working group can present results and facilitate a discussion with the decisionmaking group about how to apply implementation pilot study findings (described in step 7).

Box 7. Analyzing CIRCLE Pilot Study Data

Research staff members in the core working group were responsible for analyzing the CIRCLE pilot study data. Given time and resource limitations, the analytical approach for each data collection method was designed to be as simple as possible.

	Analytical Approach
Teacher implementation logs	Because research staff administered six monthly implementation logs using online survey software, they could easily export the data into Excel or statistical software for analysis. For quantitative items, they calculated means, frequencies, and percentages for each teacher to determine the extent to which individual teachers implemented the CIRCLE program as intended. Research staff then calculated averages across teachers within a school, within a district, and across districts. Research staff also ran analyses by school level (elementary, middle, and high) to see if results varied. For the two open-ended survey items (about implementation modifications and suggestions for improvement), research staff reviewed and coded these responses to arrive at key themes.
Teacher feedback survey	Using a function within the online survey software program used to administer the teacher feedback survey, research staff generated a data report with visual displays of survey results. The visual displays included means, frequencies, and percentages for all survey items and teacher respondents. Research staff also ran separate reports for each school and district as well as for each school level (elementary, middle, and high).
Participant interviews	Research staff referred to the pilot study questions identified in Step 3 to determine what analyses to conduct with the qualitative interview data. Separate Excel files were set up for each district, each of which included all the interview data for each participant type (teacher, principal, CIRCLE coach). Accordingly, research staff conducted an analysis of qualitative interview data and arrived at key themes at various levels in the data. First they generated key themes for each participant type within a district. Then they examined key themes across districts to arrive at overarching themes representing the CIRCLE program as a whole.
Teacher observations	The CIRCLE teacher observation protocol, in which CIRCLE district coaches would record the frequency of certain teachers practices and rate these practices on Likert scales, was developed in Excel and designed to self-populate observation ratings in the form of visual data displays. Displays included bar charts to compare the frequency of various practices and line graphs to show how teacher practices changed over time. These functions eliminated the need for CIRCLE district coaches to analyze their observation data.

Step 7: Reflect on the results and determine action steps

After a pilot study has concluded, it can be beneficial for the core working group to engage in a conversation with the decisionmaking group to discuss pilot study data and reflect on the challenges and successes identified from the study. Did the pilot study highlight any strengths of the initiative? What challenges did each site or each participant encounter? What steps will SEA or LEA leaders need to take to solve these challenges during full implementation? How difficult would it be to take those steps, and is it worth investing in those changes for the initiative? The final result of this post-pilot study conversation is a decision to adapt, adopt, or abandon the initiative (see "Final decisionmaking process" box).

Final decisionmaking process

☐ Adapt
  o "It *could* meet our goals!"
  o Identify changes needed to avoid challenges in the future, and take necessary steps to implement those changes.
☐ Adopt
  o "It all came together!"
  o Determine necessary steps to scale up the initiative.
  o Implement the initiative as-is in additional locations or systemwide.
☐ Abandon
  o "There is limited or no evidence it could address our needs."
  o Decide if your data indicate the initiative is sufficient to your needs, or if the challenges are too costly to overcome.
  o Discuss other evidence-based approaches that may achieve the desired result.

Review summaries and visual displays of results to identify initiative implementation strengths and needs

When reviewing pilot study data, the core working group and decisionmaking group members can revisit the initiative logic model to identify the extent to which implementation of the initiative was aligned to the theory of change. Examining alignment of actual implementation to the theory of change can help with the decision of whether to move forward with fully implementing the initiative as is or whether it is necessary to make adjustments. If implementation is aligned to the theory of change, the initiative is more likely to achieve its intended outcomes. If implementation is not aligned to the theory of change, core working group and decisionmaking group members can engage in a data-informed discussion about which aspects are not aligned and why, and whether it is feasible to make the necessary adjustments to implementation when adopting the initiative on a larger scale.

To examine implementation relative to the theory of change, a core working group team member can facilitate a discussion around the data displays as they relate to the implementation pilot study questions and theory of change. For example, if one of the study questions is "How much time do teachers spend implementing the initiative?" and one of the inputs in a theory of change is weekly one-hour meetings with a coach, then the group can review data displays about the number of times teachers met with a coach and the length of time for each meeting. In the process, ask members of the core working group and decisionmaking group to write down and then share a one-sentence summary or key takeaway for each data display. Once you have compiled these takeaways, remove any duplicates and classify each one as a strength or need. A need in this context is an area for improvement or an aspect of initiative implementation that requires refinement. The groups can then celebrate the strengths identified and give each identified need a priority level such as high, medium, or low, to determine which aspects of initiative implementation are most critical to refine and adjust. Repeat this process for each data display.

Consider how to address identified initiative implementation needs

The next part of this step is to consider whether it is feasible to address identified implementation needs or areas for improvement. Once members of the core working group and decisionmaking group have reviewed the data displays and determined a list of areas for improvement, summarize the key takeaways and look for connections to see if multiple needs can be impacted with a single change to the initiative training, implementation, or support. Then, discuss how to address these areas for improvement. For example, do you need to provide a midyear training to help keep implementation on track? Do you need to provide upfront guidance on how the initiative aligns with existing school or district priorities? For each need, identify a goal or specific aim for improvements, and then identify the specific steps that would move toward that aim. Using the specific, measurable, achievable, relevant, time-bound (SMART) framework can be helpful for thinking through these plans.

Decide to adapt, adopt, or abandon the initiative

Following these data-driven discussions, the decisionmaking group members have the information they need to engage in a discussion on whether to adapt, adopt, or abandon the initiative. If the identified areas for implementation improvement and steps and resources required to solve these issues are achievable, then the decisionmaking group may choose to adapt the initiative. If the pilot study data reveal that participants implemented the initiative as intended and minimal needs, if any, are identified, the decisionmaking group may choose to adopt an initiative. However, if substantial changes are needed to implement the initiative as intended and these challenges are costly to overcome, or the data reveal that the initiative does not appear to adequately address your needs, the decisionmaking group may decide to abandon it.

Identify action steps

Based on the results of the pilot study, the decisionmaking group may decide to abandon the initiative. In this case, an action step might be to identify other evidence-based approaches or initiatives that may meet its needs and achieve desired results. For example, if the implementation pilot study results suggest the program requires coaches with expertise that is not available in most participating districts, part of the next steps may be to find an evidence-based program that does not have the same requirements.

If the decisionmaking group decides to adopt the initiative, group members can discuss where they plan to implement it and determine the steps necessary to scale it up. Consider challenges that may arise in full-scale implementation and create a plan to forestall them. For example, the core working group may have provided support and troubleshooting to a small group of schools or teachers during the implementation pilot study but would be unable to provide the same level of support to a larger group. How can you ensure it will be feasible to provide the necessary supports at scale? How can the team improve materials or trainings? How can you leverage the experienced staff from the implementation pilot study to support new users during full-scale implementation?

Further, if the decisionmaking group decides to adapt the initiative, the core working group and decisionmaking group can identify changes needed to improve on its current iteration.

Revisit the priority-ranked needs and the SMART goals discussed previously in this step. The decisionmaking group can consider high-need and quick-win items as high priority for implementation. High-need items are those that are most critical to program success, for example, additional trainings or providing sufficient planning time. Quick wins are needs that are easy to address because they are currently close to ideal; for example, making sure reminder emails go out automatically or providing electronic copies of materials to all participants. Consider developing action steps, identifying who is responsible and under what timeframe, for each need and goal.

In addition, when a group decides to adopt or adapt an initiative, continue monitoring implementation over time. Although implementation monitoring is resource intensive, it is an important part of the continuous improvement process and will improve the quality of the program and the likelihood of success at scale.

Our CIRCLE example (box 8) is an example of this process.

Box 8. Reflecting on CIRCLE Pilot Study Results and Determining Action Steps

The core working group developed data summaries and visual displays, organized by the pilot study questions, for its review of results with members of the decisionmaking group. During the meeting with the decisionmakers, core working group members facilitated a data-driven dialogue involving three steps:

- View summaries and visual displays of results to identify strengths and needs related to initiative implementation.
- Consider whether it is feasible to address identified implementation needs.
- Decide to adapt, adopt, or abandon the initiative.

Engaging in this process resulted in the core working group and decisionmaking group identifying the following key implications and action steps for scaling the CIRCLE program statewide:

- CIRCLE coaches and teachers see the need for the coaching model in their schools and are willing to dedicate the time necessary for coaching and implementation.
  - Action step: Provide principals with guidance about the time teachers need for coaching and initiative implementation, and share feedback from teachers about how this investment is worthwhile.
- The CIRCLE model could be modified to include only three observations of each teacher instead of four. This would give CIRCLE coaches more time to support more teachers within a district.
  - Action step: Modify the program to include only three teacher observations.
- Principal buy-in is critical to supporting teacher participation in CIRCLE. Principals need to be well informed upfront about the CIRCLE model, requirements for participation, and supports for successful implementation.
  - Action step: Create principal-focused informational materials about the CIRCLE program and requirements for participation. Include what pilot study school principals shared about their participation and the results of the program.
  - Action step: Provide guidance to principals about selecting teachers for CIRCLE participation.
- CIRCLE teachers were able to implement CIRCLE reading comprehension strategies as intended. Feedback on how they modified strategies provided insights about additional challenges English learner students experienced during instruction.
  - Action step: Revise the CIRCLE strategies to include examples of various modifications teachers can make to respond to student needs and grade level.
- With slight modification, the CIRCLE program is ready for scale-up statewide. There is interest in looking at measuring outcomes as depicted in the CIRCLE logic model.
  - Action step: Develop an evaluation plan for measuring CIRCLE implementation and outcomes. Conduct an evaluation over the next two to three years to look at longitudinal student data.

Conclusion

This resource provides TDOE with a systematic process for conducting an implementation pilot study to "test" the implementation of an initiative on a small scale. The implementation pilot study process includes: the design phase (establish roles and responsibilities, develop pilot study questions, determine data collection methods); the execution phase (identify and recruit pilot study sample, collect the data); and the engagement phase (analyze the data, determine action steps). The information collected through an implementation pilot study is an important component of a larger, data-informed decisionmaking process that helps leaders decide whether they will adapt, adopt, or abandon an initiative.

Useful Resources

Resources to learn about pilot studies

Bowen, D. J., Kreuter, M., Spring, B., Cofta-Woerpel, L., Linnan, L., Weiner, D., Bakken, S., Kaplan, C. P., Squires, L., Fabrizio, C., & Fernandez, M. (2009). How we design feasibility studies. *American Journal of Preventive Medicine*, *36*(5), 452–457. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2859314/

National Campaign to Prevent Teen and Unplanned Pregnancy. (n.d.). *Tips and recommendations for successfully pilot testing your program: A guide for the Office of Adolescent Health and Administration on Children, Youth, and Families grantees.* Department of Health and Human Services, Administration on Children, Youth and Families, Office of Adolescent Health, Author. https://www.hhs.gov/ash/oah/sites/default/files/pilot-testing-508.pdf

Thabane, L., Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L. P., Robson, R., Thabane, L. G., Giangregorio, L., & Goldsmith, C. H. (2010). A tutorial on pilot studies: The what, why and how. *BMC Medical Research Methodology, 10*(1), 1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2824145/

Resources for data collection ethics training

CITI Program Research Ethics and Compliance Training. Collaborative Institutional Training Initiative (CITI). https://about.citiprogram.org/en/homepage/

JHSPH Human Subjects Research Ethics Field Training Guide. Baltimore, MD: Johns Hopkins Bloomberg School of Public Health. https://www.jhsph.edu/offices-and-services/institutional-review-board/training/jhsph-human-subjects-research-ethics-field-training-guide.html

NIH Research Ethics Training. https://researchethics.od.nih.gov/

Resources for data visualization and analysis

The Center for IDEA Early Childhood Data Systems (2018). *DaSy center data visualization toolkit*. https://dasycenter.org/data-visualization-toolkit-2/

National Forum on Education Statistics. (2016). *Forum guide to data visualization: A resource for education agencies* (NFES 2017-016). U.S. Department of Education, National Center for Education Statistics. https://nces.ed.gov/pubs2017/NFES2017016.pdf

Regional Educational Laboratory Midwest. (2019).Reporting research and data visualization (workshop). https://ies.ed.gov/ncee/edlabs/regions/midwest/pdf/eventslides/WTCS-Research-2-Slides-508.pdf

Regional Educational Laboratory Midwest. (2019). Quantitative and qualitative analysis (workshop). https://ies.ed.gov/ncee/edlabs/regions/midwest/pdf/partnerships/ISBE-Research-5-Slides-508.pdf

Regional Educational Laboratory West. (2018). Using data visualization to address chronic absenteeism (infographic). https://ies.ed.gov/ncee/edlabs/regions/west/relwestFiles/pdf/REL_West_4-2-3-3_Chronic_Absence_Infographic_REVISED.pdf

SAGE Qualitative Data Analysis in Education (video series). http://sk.sagepub.com/video/qualitative-teaching-methods-in-education

University of Connecticut Education Research Basics (online course). https://researchbasics.education.uconn.edu/qualitative_research/#

Measuring impacts after large-scale implementation

Institute of Education Sciences and National Science Foundation. (2013). *Common guidelines for education research and development*. Authors. https://ies.ed.gov/pdf/CommonGuidelines.pdf

Wolfe, A., Goodson, B., Gan, K., Price, C., & Boulay, B. (2016). *Example evaluation plan for a quasi-experimental design*. Abt Associates. https://ies.ed.gov/ncee/projects/pdf/ExEPQuasiExperimentalDesign.pdf

Appendix A. Implementation Pilot Study Checklist for the Core Working Group

- **Develop a timeline and schedule regular meetings**

- **Step 1: Establish roles and responsibilities**

  ❑ Identify the decisionmaking and core working group members.

  ❑ Articulate the roles and responsibilities of the core working group and decisionmaking group to promote clear communication.

  ❑ Determine if an external consultant or organization is needed to complete a specific aspect of the implementation pilot study, such as instrument development or analysis.

  ❑ Schedule regular meetings with the decisionmaking and core working groups.

  ❑ Discuss implementation pilot study goals with the decisionmaking group.

- **Step 2: Develop implementation pilot study questions**

  ❑ Review the logic model to understand the theory of change for your initiative or program, that is, how the activities are intended to achieve the intended outcomes.

  ❑ Develop study questions that align with the theory of change.

  ❑ Engage the decisionmaking group in study question development.

- **Step 3: Determine data collection methods**

  ❑ Identify information needed to answer study questions and sources for that information.

  ❑ Decide on appropriate data collection methods.

  ❑ Develop data collection materials. This includes creating informed consent documents, procedures for obtaining participant consent, and procedures for addressing privacy protection and secure data storage.

  ❑ Consider creating a "data crosswalk" to map the questions from the protocols (for example, the survey or interview questions) onto the study questions.

❑ Obtain necessary approval for data collection materials and conduct necessary trainings for staff who will be involved in data collection.

❑ Develop the data collection plan.

- **Step 4: Identify and recruit implementation pilot study sample**

  ❑ Identify the pilot study sample needed to answer your study questions, taking into account participant characteristics of interest, feasible sample size, and potential pilot study sites, such as sites that are already planning to implement the initiatve or have expressed an interest in doing so.

  ❑ Create a sampling matrix, a table with the characteristics of interest serving as the row and column headers and the table cells specifying the number of participants to fall under each set of characteristics to ensure a manageable sample size.

  ❑ Develop pilot study recruitment materials.

  ❑ Recruit participants for the pilot study sample.

  ❑ Provide an orientation for pilot study participants and obtain participants' informed consent.

- **Step 5: Collect the data**

  ❑ Revisit the data collection plan and confirm the data collection roles.

  ❑ Develop appropriate processes and procedures.

  ❑ Adhere to state and district requirements for confidentiality and security.

  ❑ Collect the data and hold regular check-ins with data collectors to discuss any challenges, identify solutions, and make adjustments to the plan, as needed.

- **Step 6: Analyze the data**

  ❑ Calculate simple summary information such as percentages and means.

  ❑ Identify data visualization tools to use to review your data.

  ❑ Analyze qualitative data such as open-ended survey responses and interviews.

  ❑ Use qualitative findings to expand on and illustrate quantitative findings.

- **Step 7: Determine action steps**

❑ Facilitate a data-driven conversation with the decisionmaking group to discuss pilot study data, to support its decision on whether to adopt, adapt, or abandon the initiative.

❑ Review summaries and visual displays of results to identify initiative implementation strengths and needs.

❑ Consider whether it is feasible to address identified initiative implementation needs.

❑ In collaboration with the decisionmaking group, decide whether to adapt, adopt, or abandon the initiative.

❑ If adapting, identify changes needed to improve on the current iteration of the program or initiative.

❑ If adopting, identify necessary steps to scale up the initiative.

❑ If abandoning, identify alternative evidence-based approaches that could meet your need.

Appendix B. Logic Model Components

Logic models show the if-then relationship between the program's resources and activities and its outcomes. When designing an implementation pilot study, understanding the intended theory of change outlined in a logic model can help to inform the development of study questions. The components of a logic model include the following.

- **Inputs** are the materials and resources you invest in a program. This could include things like funding, school and district staff, materials and equipment, external support, and partnerships.

- **Activities** are what you do to address the needs of your target population. Examples might include professional development for staff who will deliver planned services, provision of research-based instruction for students, review of student data and assessing progress, and ongoing monitoring of program delivery.

- **Outputs** are the quantifiable products of each planned activity. These might include the number of professional development sessions held, the number of training modules developed, the number of staff members trained, and the number and demographic characteristics of students identified and served through an initiative.

- **Outcomes** are what the program intends to accomplish, or the expected changes as a result of the inputs and activities. In education, outcomes often involve a logical sequence of new ideas, attitudes, and knowledge leading to changes in practice at the classroom level, which ultimately lead to changes in student outcomes. Short-term outcomes are most immediately realized. Long-term outcomes are what you will achieve if your short-term outcomes are realized.

- **Impacts** are the ultimate outcomes the program intends to achieve over time.

Logic models may also document the **assumptions** underlying the theory of change. These are the beliefs, principles, and ideas that underlie program design and delivery. Examples can include the belief that all students can learn from evidence-based instruction, or that all teachers will implement a program with fidelity. Surfacing assumptions helps establish common ground among key stakeholders for understanding an issue and potential responses. Inaccurate assumptions can impact how well your program is able to meet its intended outcomes. For

example, assuming that changing teachers' knowledge about evidence-based instruction will lead to change in instructional practices without directly providing support for instructional change, could mean that student outcomes are not achieved. Discussing these assumptions while constructing the logic model helps to focus and strengthen the theory of change.

Appendix C. Example Matrix and Template for Identifying Implementation Pilot Study Questions and Sources of Evidence

Once group members have developed study questions to guide the pilot test, the core working group can create a matrix that identifies the following: the study question, the information needed to answer the question, and possible sources that can provide the necessary information. An example matrix is shown below.

Example Questions	Information Needed to Answer the Question	Possible Sources of Desired Information	
		People	*Administrative records or data collected as part of initiative implementation*
Do teachers perceive the program to be useful for helping students improve their literacy skills?	Perception data	- Teachers	N/A
To what extent have teachers integrated the program into their instruction?	Implementation data	- Teachers - Administrators	Classroom observation records completed during administrator walk-throughs
Do teachers have the knowledge and skills to implement the program as intended? If not, what additional professional learning support do they need?	Teacher knowledge and skills Program resources and supports	- Teachers - Administrators - District curriculum supervisors - Training and technical support staff (at the regional, district, or school level) - Program developers	

Example Questions	Information Needed to Answer the Question	Possible Sources of Desired Information	
		People	*Administrative records or data collected as part of initiative implementation*
Is the program feasible to implement? Do teachers have the time, organizational supports, and technology to implement the program?	Implementation data Program resources and supports	- Teachers - Administrators - District curriculum supervisors - Training and technical support staff (at the regional, district, or school level)	
How have teachers adapted the program for use in the classrooms?	Implementation data	- Teachers - Administrators	Classroom observation records completed during administrator walk-throughs
What are the conditions that support implementing the program as intended?	Implementation data	- Teachers - Administrators - District curriculum supervisors - Training and technical support staff (at the regional, district, or school level)	

The core working group can use the worksheet below to identify the sources of evidence needed to answer each pilot study question.

Consider more than one data source for each question. The first row of the worksheet provides an example.

Implementation Pilot Study Question	Information Source(s)	Data Collection Methods	Necessary Resources
How are teachers implementing Program X?	*Teachers* *Curriculum coaches*	*Implementation survey* *Instructional observations*	*Electronic survey software* *Observer training for reliability*

Appendix D. Considerations for Developing Data Collection Materials

After the core working group has decided on the different methods of data collection to use in the implementation pilot study, they will need to identify and/or develop data collection materials. Before beginning instrument development, the group can look for existing instruments included as part of the program (for example, observation protocols, coaching or teacher logs, etc.) that can be used to collect data. Group members can also look at other implementation studies to see if they can adapt the instruments for the current study. The group will need to develop its own instruments if no suitable materials already exist. Below are considerations for adapting and developing data collection instruments.

Surveys

Instrument development: Surveys items can be closed-ended or open-ended. Closed-ended items require respondents to choose from a specific set of pre-specified options (for example, Yes/No, multiple choice, Likert scale), whereas open-ended items allow respondents to answer in their own words.

For electronic surveys, skip logic can be built into the programming so that users are not aware of items that are skipped. For surveys administered on paper, the group may need to add instructions for when to skip items (for example, "If not applicable, skip to Question 8").

The core working group will need to be mindful of how many questions they include in the survey and how long completing the items is likely to take in order to limit the burden on participants.

Information provided: Closed-ended responses produce a set of uniform responses that can be aggregated to show trends across respondents. Open-ended items allow respondents to provide more nuanced follow-up information not included in closed-ended responses.

Interviews

Instrument development: The structure of interview protocols depends on whether the core working group has chosen to use structured, unstructured, or semi-structured interviews. The group needs to be aware of how many questions it includes in the interview protocol to ensure the respondent has adequate time to fully answer each question. For example, a semi-structured interview of approximately 10 questions, with follow-up probes, might require an hour to answer.

When drafting interview protocols, consider whether the questions elicit unique information not accessible by other methods, which can help the group avoid gathering redundant information and reduce the burden on study participants. After drafting the interview protocol, the group can review it to see if any questions would be better answered by a survey or other data collection method. If so, those questions can be moved from the interview protocol to the more appropriate method.

Information provided: Interviews can offer participants the opportunity to elaborate on data collected through other methods, such as responses to survey items. Follow-up probes allow interviewers to ask respondents for further information on topics of interest that were not mentioned in the initial response.

Focus groups

Instrument development: Focus group protocols tailored to the participants in each group help to ensure that the data being collected are relevant. For example, for a focus group of district staff, the core working group might want to direct its questions to the impact of the initiative at the district level. As with interview protocols, the group will need to ensure the number of questions allows group members to weigh in fully on each question, which usually means fewer items than in interview protocols. Consider including follow-up probes, as needed.

Information provided: Focus groups are useful for uncovering different perspectives on a topic of interest and gaining insight on areas where group members agree and disagree.

Observations

Instrument development: Observation protocols can be structured or unstructured. A structured observation protocol specifies a distinct set of items about how an initiative is enacted in practice. Items can take the form of a checklist or closed response (for example, the observer indicates whether or not a teacher taught a component of a lesson), or they can rely on the judgment of the observer (for example, asking him/her to give an overall rating on lesson quality based on pre-specified criteria). Structured observation protocols can also include space for observers to write any relevant notes to provide context. Structured observation protocols also typically delineate clear step by step instructions for observers and are accompanied by a scoring guide, with the goal being consistent scores across different observers. Unstructured observation protocols can contain guidance for observers but allows them more flexibility to describe their general impressions during the observation period.

Information provided: Data from structured observations can be aggregated to examine trends in implementation of the initiative and can align to examining best practices and/or developing implementation-fidelity guidelines. Observations present a good opportunity to collect details, such as the observation time of day and/or the number of students present, that can provide context for how different factors may impact the initiative in a real-world setting.

Appendix E. Example Data Crosswalk

A data crosswalk, which maps the questions from the data collection protocols (for example, survey or interview questions) onto the study questions, can help the core working group ensure sufficient data are being collected to answer each study question.

Study Question	Survey Items Aligned to Each Question	Interview Protocol Items Aligned to Each Question
1. Do CIRCLE teachers believe the CIRCLE strategies have the potential to improve English learner reading comprehension?	Q2, Q4, Q6, Q8, Q10,	Q1, Q2
2. Do coaches believe the CIRCLE program provides the professional learning support teachers of English learners need?	Q3, Q5, Q7	Q5
3. To what extent did teachers implement the CIRCLE reading comprehension strategies with English learners? Did they modify the strategies, and if so, how?	Q10, Q12	Q3, Q4

Appendix F. Example Sampling Matrices

A sampling matrix can serve as a visual organizer of information about the implementation pilot study sample, specifically, characteristics of interest and size. This information can be presented in a table with the characteristics of interest, such as geographic locale and school title I status, serving as the row and column headers and the table cells specifying the number of potential participants that fall under each set of characteristics.

In example 1, the core working group might be interested in the feasibility of a reading initiative for elementary students with school geographic locale and school Title I status as key characteristics of interest. The cell highlighted in green represents rural Title I schools, and the number 3 indicates that the core working group hopes to recruit three schools that fit those characteristics. If the group recruits three schools matching the characteristics for each cell, the sample will include 18 elementary schools.

Example 1: Elementary schools clustered by locale and Title I status

	Rural	Suburban	Urban
Title I	3	3	3
Not Title I	3	3	3

In example 2, a more complex sampling matrix, the core working group might be gathering information on an initiative to improve school climate, and schools are clustered by grade band, with the row headers indicating school achievement and school size as other characteristics of interest. The cell highlighted in green indicates a low-performing elementary school with fewer than 250 students. If the core working group can find two schools matching the characteristics for each cell, its study sample will include 24 schools.

Example 2: Schools clustered by grade band

		Elementary school	Middle school	High school
Low performing	Small < 250	2	2	2
	Large > 250	2	2	2
High performing	Small < 250	2	2	2
	Large > 250	2	2	2

Appendix G. Example Interview Data Collection Checklist

1. **Before the interview:**

   ❑ Send introductory email and consent form to the participant.

   ❑ One week before the scheduled site visit (or phone interview), send reminder email to the participant.

   ❑ Create an interview protocol with the participant's study ID number.

   　☐ **Reminder:** This number is specific to the study, not an employee ID or other identifiable number.

   ❑ Bring the following to the interview:

   　☐ Laptop and charger

   　☐ Recorders and batteries

   　☐ Consent form (hard copies)

   　☐ Protocol (hard copies)

   　☐ Copy of the interview schedule with interviewee's contact info

2. **During the interview:**

   ❑ Confirm you have the participant's permission to record, and start recording.

   ❑ State your **name**, the **date**, the **time**, and the **interviewee's ID number**.

   ❑ Stop recording at the end of the interview.

3. **After the interview:**

   ❑ Store hard-copy consent forms in a secure location.

   ❑ Upload audio to a secure location and delete it from the recording device.

   ❑ Save interview notes to the appropriate folder.

   ❑ Within two days of the interview, send a thank-you email.