



## Pilot Study Research Plan Template and FAQ/Guidelines

### Description

The resources here are provided as an example of the Inclusive Research Key Action of “Interpret research findings collaboratively with educators, students, and families.”

### Pilot Study Research Plan Template

The “Pilot Study Research Plan Template” was shared with EF+Math R&D project teams in advance of the third year of our program (“Phase 3”) to guide and support the teams in developing their pilot studies. These studies tested the mature prototypes that teams developed in years (or “phases”) 1 and 2. The template illustrates the concrete ways the EF+Math team encouraged R&D project teams to put inclusive R&D into practice as part of the architecture of their pilot studies.

It is important to note that while this resource was intended for R&D teams to complete, in order for them to complete specific sections, they had to determine a plan for involving educators, students, and families. While the template is fairly long, we believe that sharing it comprehensively paints a picture of the ways we centered the voices and perspectives of educators, students, and communities in our R&D approach.

### FAQ/Guidelines for Pilot Study Research Plan Template

The FAQ/Guidelines was created to serve as an accompaniment to our Pilot Study Research Plan Template. Here, the EF+Math team thought it would be helpful to the R&D teams to provide a series of prompts for R&D teams to consider as they develop their research plans, leveraging opportunities for them to reflect on their equity practices. Here are some examples of these questions/guidelines for reflection that you’ll find in the document:

- How will input from co-design and school partners inform selection of research questions, measures, and outcome targets?
- How will input from co-design partners be solicited in choosing a study design that is considered equitable?
- When determining the sample, consider the rationale for the characteristics of students and teachers in the sample and how they will provide good evidence for the promise of the product/program.
- How will data be presented to students and educators to ensure that it's asset-framing and doesn't reinforce implicit bias or negative assumptions about students' capabilities?

Please see below for both resources.

# EF+MATH

## Phase 3 - Pilot Study Research Plan

<b>Team Name:</b>	<b>Pilot Study - Point(s) of Contact:</b>
<b>Methods &amp; Measures Liaison(s):</b>	<b>Last Updated by [Author] on [Date]:</b>

### OVERVIEW

In Phase 3, we aim to make significant progress towards the development, implementation, and pilot testing of mature prototypes that have been developed through inclusive, equitable, and iterative R&D processes and that have been developed by team members who model and value those processes.

The Prototype and Process Goals focused on the pilot study are:

- **Promising pilot study results:**
  - Findings show indicators of promise in improving both executive function and math outcomes on either researcher-developed or standardized measures for Black and Latinx students and students experiencing poverty.
  - Sample includes at least 10 teachers and their students who will use the prototype. The student sample should include 70% or more Black and Latinx students and students experiencing poverty.
- **Inclusive, equity-centered, iterative research:**
  - Research decisions are made through a transparent process in which voices of educators and students (specifically those who identify as Black and Latinx students, or as students experiencing poverty) are valued and prioritized.
  - Demonstrated strong relationships, trust, and open communication with the co-design team and key stakeholders (e.g., educators, students, advisors).
  - Data is collected, analyzed, and interpreted using methodologies and instruments that are culturally informed and developed with community input.
  - Findings from each research cycle feed into future rounds of prototype development

### Timeline for Development of Research Plans

We aim for all teams to have an approved Pilot Study Research Plan by July 31, 2022 (end of Phase 2). EF+Math will devote time in the May and June monthly meetings to discuss ideas for the pilot studies with teams. Teams can and should continue these conversations with their Methods & Measures liaisons as needed between monthly meetings.

In order to help teams prioritize their thinking around developing their research plans, we have divided the below template into two parts. Part 1 should be completed by the June monthly meeting. Part 2 should be completed by July 7, 2022. All final revisions to the research plan should be completed by July 31, 2022.

## Phase 3 - Pilot Study Research Plan

### RESEARCH PLAN - Part 1

Deadline: Complete by June monthly meeting

#### **Research Questions**

- *What are your hypotheses related to executive functions, math, and equity?*
- *What do you consider an acceptable target for improvement on your outcome measures? Be specific. For example, percentage of students improving on a math measure, or percentage of students reaching a specified threshold.*

#### **Description of Study Design**

- *What type of study do you plan to conduct? (e.g., QED, RCT)*
- *If applicable -- How will the comparison/control group be constituted?*

#### **Description of Conditions to be Studied**

- *For treatment/intervention\* group -- Describe the implementation condition. Be specific, and include such factors as frequency and duration of use and adherence to desired use of the learning system. Attention should also be given to implementation for teacher training activities.*
- *(if applicable) For control/comparison group -- Describe the control condition.*

#### **Sample Size**

- *Include the target number of districts, schools, classrooms, teachers, students. How will you account for attrition?*
- *Include participant demographics. Also, specify any requirements, such as teacher experience level or prior experience using the learning system.*

#### **Approach to Inclusive Research**

- *Include high level details of your team's approach to inclusive research.*
- *Note: You can also leave questions or wonderings here, as we anticipate this will be an ongoing discussion.*

[\*As an example of this, one wondering from the EF+Math team is if there are terms other than “treatment/intervention” that can better convey our values of inclusive research.]



## Phase 3 - Pilot Study Research Plan

### ***Anticipated Timeline of Major Study Milestones***

**Deadline: Complete by June monthly meeting**

Key Milestone	Date or Date Range
Study Plan Finalized	July 31, 2022
IRB Approved	
Recruitment Period	
Pretests Administered	
Implementation of Intervention	
Posttests Administered	
Data Analysis Period	
Final Report	

## **RESEARCH PLAN - Part 2**

**Deadline: Complete by July 7, 2022**

<b><i>Recruitment and Participant Support</i></b> <ul style="list-style-type: none"><li><i>Include plans for developing relationships with districts, recruitment of teachers, consenting of participants, paying of stipends, etc.</i></li></ul>
<b><i>Implementation Plan</i></b> <ul style="list-style-type: none"><li><i>Include plans for onboarding/PD for participants, distributing materials and/or technology required for implementation, and providing ongoing support to participants during implementation.</i></li></ul>
<b><i>Data Collection Plan</i></b> <ul style="list-style-type: none"><li><i>Include all primary and secondary data to be collected, as well as a description for how it will be collected and who on the team will be responsible for data collection.</i></li></ul>

## Phase 3 - Pilot Study Research Plan

- *Note: If there is more than one research question, it is important to indicate/provide a crosswalk of how each research question is addressed by the data collected.*

### ***Data Analysis Plan***

- *Include plans for scoring, cleaning, coding, and analysis of the data.*

### ***Interpretation of Findings***

- *In addition, please also describe how members of the community will be included in making sense of data and constructing next steps in improving the learning system.*

### ***Reporting of Findings & Dissemination***

- *Include expected/planned dissemination activities, such as presentations, peer-reviewed articles, and other publications.*



## Phase 3 - Pilot Study

# FAQ/Guidelines for Developing the Pilot Study Research Plan

## OVERVIEW

This document has been developed for use by the Methods & Measures team and the EF+Math executive team as they guide awardee teams in the development of their Phase 3 Pilot Study Research Plans. This is a living document that will be updated with guidelines and responses to frequently asked questions as teams plan for their research studies. Both the M&M team and the EF+Math team should update the document as needed, to reflect the conversations that are taking place with the awardee teams. The goal is for the M&M team and the EF+Math team to use this document to remain in alignment with the guidance and responses that are given to teams regarding the pilot study research plans.

**FAQ/Guidelines for Developing the Pilot Study Research Plan****RESEARCH PLAN - Part 1****Research Questions**

- *What are your hypotheses related to executive functions, math, and equity?*
- *What do you consider an acceptable target for improvement on your outcome measures? Be specific. For example, percentage of students improving on a math measure, or percentage of students reaching a specified threshold.*
- How will input from co-design and school partners inform selection of research questions, measures, and outcome targets?
- Research questions should be based on the team's updated theory of action.
- Questions of interest to teachers and the school community should be solicited.
- Recommended: Although not required, determining whom the product works best for would be of added benefit in evaluating and improving the promise of the product/program.
  - For example, do students with lower math skills make more progress than those with higher math skills? Do students who show stronger gains in executive functioning also show more progress in math skills?
- Recommended: For teams utilizing tools developed by an Applied Research team, the Prototyping Track team and Applied Research team should collaborate on research questions to address how the tool works in conjunction with the product/program.
  - Note that the driver of this research may be the Applied Research team under their own separate Phase 3 scope of work.

**Description of Study Design**

- *What type of study do you plan to conduct? (e.g., QED, RCT)*
- *If applicable -- How will the comparison/control group be constituted?*
- How will input from co-design partners be solicited in choosing a study design that is considered equitable?
- We do not expect a *fully powered RCT* in the pilot study. Rather, the emphasis is on testing different implementations and conditions that will inform further revision of the product or program.
  - We say we are not expecting a fully powered RCT, which given the number of teachers we expect them to work with is not likely to be feasible.
  - Whether random assignment of teachers/students makes sense will be due to many factors that vary across the teams – the studies they've conducted so far; the context and schools in which they are working; aspects of the product they are evaluating. There is also some sensitivity to random assignment in engaging in inclusive R&D with our school partners. **The teams should use the**

## FAQ/Guidelines for Developing the Pilot Study Research Plan

strongest design that is practical for them and that will provide some insight into aspects of implementation. So while we don't require random assignment, it would certainly be okay to do so if it makes sense for a particular team.

- Depending on the product and other factors, it may be possible to assign students to different conditions/implementations; or in the case of departmentalized instruction (in which a teacher has multiple sections) to assign sections to different conditions/implementations.
- Inclusion of a comparison group is encouraged, but not required.
- All studies should include pre- and post-measures.
- In schools utilizing departmentalized instruction, it may be possible to use a within-teacher design.
- Consideration should be given to the possibility of using innovative designs, such as Leapfrog, to support iteration within the pilot study.

### **Description of Conditions to be Studied**

- *For treatment/intervention group -- Describe the implementation condition. Be specific, and include such factors as frequency and duration of use and adherence to desired use of the learning system. Attention should also be given to implementation for teacher training activities.*
- *(if applicable) For control/comparison group -- Describe the control condition.*
- How will you determine that implementation of the product or program is equitable?
- Measures of usability, feasibility, and fidelity developed for use in Phase 2 studies should be collected in the pilot study.
- Acceptable targets should be specified (e.g., 75% of teachers rate product/program as usable).

### **Sample Size**

- *Include the target number of districts, schools, classrooms, teachers, students. How will you account for attrition?*
- *Include participant demographics. Also, specify any requirements, such as teacher experience level or prior experience using the learning system.*
- How will you meet the goal of 10 teachers and a student sample that is 70% priority students?
- When determining the sample, consider the rationale for the characteristics of students and teachers in the sample and how they will provide good evidence for the promise of the product/program.

**FAQ/Guidelines for Developing the Pilot Study Research Plan****Approach to Inclusive Research**

- *Include high level details of your team's approach to inclusive research.*
- *Note: You can also leave questions or wonderings here, as we anticipate this will be an ongoing discussion.*
- How will all aspects of the pilot study design, implementation, analysis and reporting utilize an asset-based approach?
- How will you make your methodology transparent to all stakeholders?
- We want to ensure that questions that are important to educators and the school community are addressed in the pilot study. Co-design and ELC members should begin providing input on the formulation of research questions and throughout all considerations around recruiting, implementation, data analysis, data interpretation, and iterative refinement of the product/program.

**RESEARCH PLAN - Part 2****Recruitment and Participant Support**

- *Include plans for developing relationships with districts, recruitment of teachers, consenting of participants, paying of stipends, etc.*
- How will you ensure that non-participating students feel they are being treated fairly?
- How will teams work with teachers to introduce the study to students in such a way that participating students aren't deficit framed and don't feel singled out and that non-participating students don't feel like they're missing out?

**Implementation Plan**

- *Include plans for onboarding/PD for participants, distributing materials and/or technology required for implementation, and providing ongoing support to participants during implementation.*
- Consider how the team plans to gather information about the cultural relevance of the materials.

**Data Collection Plan**

- *Include all primary and secondary data to be collected, as well as a description for how it will be collected and who on the team will be responsible for data collection.*

**FAQ/Guidelines for Developing the Pilot Study Research Plan**

- *Note: If there is more than one research question, it is important to indicate/provide a crosswalk of how each research question is addressed by the data collected.*
- Include evidence that outcome measures will provide valid and reliable evidence for our priority students.
- Include data sources that will support further refinement of the program/product.

**Data Analysis Plan**

- *Include plans for scoring, cleaning, coding, and analysis of the data.*
- How will co-design partners be included in analyzing data?
- How will data be presented to make it actionable for the school community?
- Will data be disaggregated to analyze specific student subpopulations? If so, how can the team ensure that intersectionality isn't overlooked?
- How will co-design partners be given access to data?
- Teams should consider imputation and/or omission of data, based on implementation conditions (e.g., amount of dosage, teacher fidelity).

**Interpretation of Findings**

- *Describe how members of the community will be included in making sense of data and constructing next steps in improving the learning system.*
- How will data be presented to students and educators to ensure that it's asset-framing and doesn't reinforce implicit bias or negative assumptions about students' capabilities?
- How will data be presented to make it actionable for students and educators?
- How will students and educators be involved in data interpretation to ensure that diverse perspectives are valued and lived experience is privileged?

**Reporting of Findings & Dissemination**

- *Include expected/planned dissemination activities, such as presentations, peer-reviewed articles, and other publications.*
- How will teams determine the appropriate language, framing, and presentation style to ensure data is presented in a way that disrupts racist/oppressive structures and systems?



## Phase 3 - Pilot Study

### FAQ/Guidelines for Developing the Pilot Study Research Plan

- How will you ensure the data is accessible to diverse audiences and stakeholders to support collaborative decision-making?
- Describe how community members will be involved in dissemination activities.
- Encourage teams to think about different modes of dissemination that may allow their message to reach different audiences.