Guide: Craft Your Research Question

A carefully crafted research question grounds the development of a RCE in a clear statement of the evaluation's goals. This guide highlights the key components of a well-defined research question and provides examples for each of the four types of research questions that can be answered using the RCE Coach.

INGREDIENTS OF AN EFFECTIVE RESEARCH QUESTION

Table 1 illustrates the key ingredients of a focused research question. Thinking through the details of the intervention, its intended goal, and the target population of students, teachers, or schools at this stage will make the rest of the process much easier. However, you may not know every aspect detailed in this table at this point. If that's the case, the table can help identify critical aspects of the evaluation that you will want to discuss with key stakeholders as soon as possible.

Table 1. *Components of a Well-Crafted Research Question*

Basic formula: Does A do B among C compared to D?	
"A" is your intervention. If you are looking at a specific technology, this would just be its name. Consider including how often and for how long the users interact with or are exposed to the program.	**Examples:** "eZumi Learning" OR "12 hours of professional development on the use of TrueStar" "Six weeks of using a modified version of eZumi three times per week"
"B" is the intended impact on the outcome you're interested in. When possible, specify your outcome measure and the direction of the effect intended by the intervention. If it's not clear from A, state the time frame in which you'll measure the outcome.	**Examples:** "Increase achievement on an interim test of math proficiency" "Increase the number of videos posted in a four-week period" "Increase minutes of technology use" "Decrease absences"
"C" is the group of people for whom you want to measure impact. What group of individuals are you trying to affect? For example, students may be using the technology to increase their own achievement or teachers could be using the technology to increase their students' achievement. In both cases, the answer to Part C would be: students.	**Examples:** "6th-grade students" "3rd- through 5th-grade teachers" "Students who were not proficient on last Spring's state math test" "Algebra teachers who have previously used eZumi in their classroom" "5th-grade English Language Learners"

"D" is the group of people you want to compare the group defined in C to. This group should be as similar to those identified in C as possible. In an ideal world the only difference between the two groups would be the intervention. When thinking about this group, consider where the technology is being used. If the technology is only being used in three out of five classes, then the other two classes may be the appropriate comparison group. Please note that it may be necessary to look at school- or district-wide data in order to obtain data for an appropriate comparison group.	**Examples:** "Similar 5th-grade English Learners with no access to eZumi Learning" "Similar 5th-grade English Learners who use Wizlet Math instead of eZumi Learning" "Similar algebra teachers who received only six hours of professional development on the use of TrueStar"

EXPECTED ANSWERS TO A WELL-FORMED RESEARCH QUESTION

A rapid-cycle evaluation will provide one of three answers:

- ☐ Yes, A is likely to do B among C, compared to D.
- ☐ No, it is not likely that A does B among C, compared to D.
- ☐ More data are needed to reach a strong conclusion.

The answer you get may drive important decisions within your school or district. The Coach's guide for Planning Your Next Steps, will help you think through how you will use the evidence you uncover through this process. Because a well-designed evaluation aims to provide a clear answer to the precise question it was designed to address, it is important to confirm with evaluation stakeholders that the question addresses a learning objective that can help inform decisions and actions.

RESEARCH QUESTION EXAMPLES

There are four key types of research questions that the RCE Coach is designed to help answer. Table 2 lists examples of each type.

Table 2. *Examples of Research Questions, By Type*

Category of research question	Examples of clear, narrow research questions
Does this technology achieve its intended outcomes?	• Does a semester of daily use of Everest Learning Lab by teachers increase math test scores among middle school students compared to middle school students whose teacher does not use Everest Learning Lab? • Does a semester of daily use of Everest Learning Lab by teachers increase math test scores among students who are below grade level in math achievement compared to similar students whose teacher does not use Everest Learning Lab? • Does TrueStar increase match achievement among second graders compared to similar second graders who are using eZumi?
Does this training help users engage with this technology more and/or better?	• Does providing teachers with two days of training on how to implement a flipped classroom using Everest Learning Lab increase the number of videos posted in a four-week period, compared to teachers who did not receive the training?
Does providing information to [*parents, teachers, or students*] change behavior?	• Does sending automatically generated, weekly text reminders to parents increase time spent reading in eZumi over the course of a month among elementary school students, compared to similar students whose parents did not receive reminders? • Does an automatically generated text message to parents when a student is absent in homeroom increase attendance over the course of a semester among students, compared to similar students whose parents did not received a text message?
Does this modification to the technology (or how it is implemented) make it work better?	• Does changing the order of the content in eZumi for two months increase performance on benchmark assessments among middle school students compared to similar students who see the content in the default (or different) order? • Does altering the interface to be more visual and less verbal increase lesson completion rates over the course of three weeks among students, compared to students who see the default interface? • Does using TrueStar in an after-school, peer-guided setting increase student test scores on a benchmark assessments among EL students compared to EL students who use TrueStar in an independent lab-based setting?