Facilitator Guide: RCE Coach Demo of MathTechX

NOTE: This is a train-the-trainer model, so depending on your role, think about who might be the best person to appoint as the expert/champion that can lead this training with your various stakeholders.

While the first time through the RCE Coach will take 2-4 hours to become familiar with the process, once your appointed expert understands the click-path through the demo, he or she can expect to get through an entire demo in ~45 minutes.

In total and for future planning, facilitators should schedule a 60-75 minute long session when conducting a demo that includes starting with the overview Powerpoint presentation, then leading the demo and Q&A portion.

Audience

In general, the Coach is for school or district leaders that have access to administrative level data. Some roles that we've seen lead the RCE Coach include:

- State Tech Directors
- State Program Evaluation/Directors of Research
- District Curriculum Directors
- District Program Evaluation Teams
- District Professional Development/Academic Support Leads
- School Level Principals
- School Level Instructional Coaches

In the future, we hope to broaden the language of the coach so that it can be more applicable for teacher-use, as well as for interventions outside of ed tech to better partner with the research community, which will impact your audience.

Preparation (2 - 4 hours)

1. Become familiar with the RCE Coach
    a. Visit www.edtechrce.org and read through the content on the landing page
    b. Read through the FAQs (also available by scrolling to the very bottom of the landing page)

2. Prep for the Demo
    a. Download the data file you will need to lead the demo
        i. Scroll to the bottom of the page and click "Guides & Reference Resources"
        ii. Click to download the Math Tech X Test Data set and save
        iii. Familiarize yourself with the data set. *(NOTE: while the scenario you will demo below is for a forward-looking design, this data set already has the outcome column filled in for ease of use.)*

b. Create an account (link found in the upper right hand corner of the landing page)
c. Create an evaluation by going through this facilitator guide first using the Math Tech X Test Data

About the Facilitator Guide

- *Steps and tools* are noted in orange italics and provide you with an estimated timeframe for explaining that part of the Coach
- **Facilitator Language**, bolded and highlighted in yellow, is the word-for-word script of what to say during the demo
- ***Facilitator Context***, italicized and written in blue, is meant to provide background knowledge to why certain aspects of the Coach were created the way they were or areas where we've experienced push back/questions in the past. You do not need to say these points in the demo, but we thought it would be helpful to know should questions come up.

Demo Script

Landing Page (3 minutes)

Facilitator Action:

1. Go to www.edtechrce.org

Facilitator Language: Welcome to the demo of the RCE Coach, a free, web-based platform created by the US Department of Education in partnership with Mathematica Policy Research and SRI International. The platform is meant to provide you with a structured and intuitive process for evaluating the various educational technologies in use or soon-to-be-used at your school sites/in your district. While the tool is heavily focused on the evaluation of ed tech products, you'll find after going through the process that the research methodology it provides you is more broadly applicable to any intervention. With that, we think this platform can be a helpful guide in fostering rich discussion among our educator teams about what's the purpose of our various ed tech interventions, what outcomes to we hope to see, and how we will know if it's actually working with our students in our unique context.

You can access the Coach by visiting the website edtechrce.org. If you have not already created an account you can click the "Get Started" button on the landing page or navigate up to the "Create Account" link in the upper, right-hand corner of the screen. If you have already created an account you just click "Login".

Before we login, however, you'll notice the "Feedback" tab on the right side of screen. These tabs can be found on every page of the Coach and are meant to provide Mathematica, the creator of the tool, with in-the-moment feedback for how the tool can be improved. Keep this in mind as your walk through the process and have ideas on how the Coach can better meet the needs of its end users. Additionally, if you scroll down to the middle of the page, there is another feedback section with an email (edtechrce@mathematica-mpr.com) where you can send specific questions about the process.

The last part of the landing page that I will explain is the section where you can preview all the tools of the Coach before actually creating an account. These are found under the section titled “Welcome to RCE for Ed Tech” and if you click “more” you will be taken to the full list of downloadable tools you can print off and read through if you prefer.

Logging In (1-6 minutes)

Facilitator Action:

1. Click “login” and login to your account

Facilitator Language: Now we’ll actually get into the Coach. I already have an account, but if you are new to the Coach, it’s free to create an account and all you need to do is create a password.

Facilitator Context: *If you’d like participants to follow along with you, give them 5 minutes here to create an account. Alternatively, you can have them create an account after the full demo so they get an idea of how it works first. You could also have them create accounts as pre-work.*

Dashboard (3 minutes)

Facilitator Action:

1. Click the down arrow on the “Need help getting started?” section
2. Click “View Shared Evaluations”

Facilitator Language: Once you’re logged in you’ll land on the dashboard page. You are now seeing my personal dashboard that shows all of my current and previous evaluations. However, if this is your first time logging in, you will see all the guides available in the “Need help getting started?” drop down.

And, before I show you how to actually start and conduct your own evaluations, I want to show you the “View Shared Evaluations” feature.

This allows you to see any evaluation that has been conducted in the Coach. This is an option for you at the end of the process where you can choose whether you’d like to share your evaluation or not. This is not mandatory.

Facilitator Context: *Some evaluations on this shared page are demos that our team has done and these will eventually be deleted and/or clearly identified as “test” to avoid confusion among users. There are a few that are completed and shared - the ones by Uplift Education (a charter network in Texas) - that are part of our pilot cohort. Uplift Education uses the Coach on a weekly basis as they use the Coach near the end of their budgeting year in order to help them make decisions about which ed tech applications and non-tech programs they will continue to purchase.*

Getting Started (2 minutes)

Facilitator Action:

1. Click “Back to Dashboard”
2. Click into your Math Tech X evaluation that you’ve already completed in preparation of this demo

Facilitator Language: Now let’s get started on an actual evaluation. I’m going to walk you through an evaluation of a made-up technology, Math Tech X, that I’ve already completed to demo the process. The first step you will encounter is the “Getting Started” step and you’ll notice three tiles, or what we call “tools” on this page. They will all show up with a white background if you have never visited the tool before, otherwise, they will be shaded out to note that you have already completed that tool. You can always go back and edit a tool you have completed.

Additionally, you’ll notice each tool has an icon - the check list icon means you will have to input information, versus the info icon which means the tool is more of guide and provides you with information you can read. Lastly, you’ll also notice each step along the top (hover over these with your mouse) which you can click to navigate through the process, or (scroll to the bottom and hover of the text with the arrow) you can click the text along the bottom to take you the next step.

The Basics Tool (3 minutes)

Facilitator Action:

1. Click “edit” within The Basics tool
2. Click “No” for the answer to the first drop-down question.

Facilitator Language: The first tool in Getting Started is “The Basics” and the very first question the Coach will ask you is whether you have selected a technology to evaluate. I’ll click “no” to show you that a warning pops up saying the Coach can’t help you unless you have already selected a technology to study. It will link out to the “Choose a Technology” resource which provides guidance on how to select an ed tech application based on your needs, and invites you to return to the Coach once you have selected a technology.

Facilitator Action:

1. Click “yes” for the first drop-down question
2. Write in Math Tech X to the second question
3. Select “student academic achievement” for the third drop-down option while also clicking the down arrows for “Things to Consider” & “Example”
4. Select “students” for the fourth drop-down question
5. Click “save & continue”

Facilitator Language: If we do have an ed tech application we’d like to study, I’ll select “yes” for this first question at which point you’ll notice a few more questions populate on the screen. For the next question you will write in the name of the ed tech application, then it will ask you what

outcome you hope the technology will change. The drop down lists the most popular or common outcomes, but know that if you click “other” you can write in your own. You’ll also notice the “Things to Consider” and “Example” sidebars which occur within every tool and are meant to provide guidance throughout the process and serve as embedded professional development.

The last question in this tool is “Who are or will be your technology users?” - we’ll pick students. Another important note is that the answers we write in or select in each tool will pre-populate throughout the Coach in later steps.

Now that we have identified our technology, picked an outcome category and determine our technology’s users, we can click “save & continue”

Determine Your Approach Tool (4 minutes)

Facilitator Action: *Steps to take as your talk through the tool…*

1. Click “edit” on the “Determine Your Approach” tool
2. Select “new” for the first drop down
3. Select “yes” for the second drop down
4. Select the “random assignment” check box
5. Select “groups of students” for the third drop down
6. Select “by class” for the fourth drop down

Facilitator Language: The premise of this tool is to identify whether you are creating an evaluation for an ed tech application you have already implemented or are about to roll out to your students (or users). That is the first drop-down question. It’s important to note here that the Coach essentially has two different types of evaluation designs:

- A “backward-looking” research design is one where you have already implemented the technology with only a subset of your users. It is important that only some, not all, of your users had access to the technology in order for the Coach to help you create a matched-comparison group to identify a group that used the ed tech (the treatment group) and a group that didn’t (the control group). This will help you determine if the technology worked by comparing the outcomes of the two groups, while limiting the variations in characteristics across the two groups so you can be sure that it was, in fact, the technology that made the difference.
- The other research design the Coach will help you conduct, and the one that we will demo today, is a “forward-looking” research design which accounts for the situation where you have selected an ed tech application, but have not yet provided access to your users.

For the forward-looking research design, we provide the recommend approach - called “random assignment” - and it’s the highlighted check box that pre-populates when you’ve entered in the previous drop-down boxes that you have a “new” technology and have responded with “yes” to whether you can provide access to only a portion of your users. The Coach now knows that when you upload all your students to the platform, it can randomly assign who should use the

new ed tech application based on limiting the number of variations across student characteristics to make the most similar groups of users and non-users. This, again, is a key piece to any rigorous evaluation design to help you be confident that it was the ed tech that caused the results in the outcomes that will be tracked.

Facilitator Context: *For the other design approaches - we do not yet have the tools created to create a "cutoff" approach. This is a regression discontinuity design and is meant for the use case where a school/district would like to set up a treatment and control group based on a cut-score or risk factor (i.e. I'm going to give a remedial online reading program to only my ELL students that scored a 1 or 2 on the language assessment). The "other approach" is the matched-comparison design mentioned above, which is built out and available, and is for the use case where you have an ed tech application you have already implemented with a subset of your population.*

People may ask about the situation where they gave access to an ed tech product to everyone in the district, but only a subset of users chose to use it. This is a common situation for districts and one where you could use a matched comparison design. However, it's important to remember that you can't account for whatever led some people to use it and others not to, which is important to consider when analyzing your results.

Facilitator Language: The last step on this page is to let the Coach know if it should randomly assign students to use the technology at the individual student level or by groups. For today's purposes, we'll say that we are going to assign students by groups. You'll notice that a second drop down appears, allowing you to tell the Coach if you'd like to group students by class, school or some other factor. We'll select by class.

Lastly, you'll see that the Coach lets us know that based on our answers we can move forward with conducting a randomized pilot of our new ed tech application, so we'll now click "save & complete" to move onto the next tool.

Who is Using Your Technology? (1 minute)

Facilitator Action:

1. Click "view" on the Who is Using Your Technology and How? tool
2. Quickly scroll through the content using the talking points below
3. Click "done"

Facilitator Language: This next tool is strictly an informational guide (as noted by the icon) and you will not have to input any information. The main goal of this guide is to help your team think through usage data and whether the technology is actually being implemented the way you had intended. The first couple of graphs show you example usage data with guiding questions to model similar questions you might ask of your own usage data once you've implemented the ed tech application for a few weeks. The last part of the tool talks about the kinds of usage data you should be getting from the developer and tips on asking for additional data if needed.

Planning Your Research (1 minute)

Facilitator Action:

1. Click the "Planning Your Research" step

Facilitator Language: The Planning Your Research step is the most critical step in the RCE process as this is where you will craft your specific and targeted research question, determine what success will look like and input your district or school's demographics and specific implementation context. The first tool in this step is called "Craft Your Research Question".

Facilitator Context: *As we've been working with districts, a lot of them have been really excited about the capacity building aspect to the Coach. We've gotten feedback from districts that even if they don't get to the actual data analysis piece, that working through the "Craft Your Research Question" and using the "Think About How to Use Your Results" tools have really helped start to shape district culture around thinking of data and evidence in a way they hadn't before. They've found that having a concrete question, with a particular technology in mind, and working through the details of narrowing in on the research question and how they are going to use the information, really makes this process very practical and let's them work through it in a useful way.*

Crafting Your Research Question Tool (3 minutes)

Facilitator Action:

1. Click "edit" on the Crafting Your Research Question Tool
2. Scroll to box A
3. Scroll to box B
    a. Select "increase"
    b. Write in PARCC (or whatever state assessment will make sense given your audience)
4. Scroll to box C
    a. Write in "middle school students"
    b. Click the example sidebar, drop down
5. Scroll to box D
    a. Write in "other middle school students not using MathTechX"
6. Click "save & complete"

Facilitator Language: For crafting your research question we basically broke the process down into four simple parts and labeled them A through D. The Coach calls it the blueprint and it provides a framework for any research question... Does A do B among C compared to D?

You'll see in the first box - A - that it's asking what is the name of your technology and the Coach already pulled in the name based on what you previously entered on earlier tools. Additionally, as you scroll down, you'll see that we previously identified the outcome category - student academic achievement - but now the tool is prompting you for a little more information in

that it's asking for the intended direction of the change and the specific measure you will be using. We typically want to see an increase in test scores when dealing with student academic achievement on our specific outcome measure. However, as a counter example, if you had an intervention that looked at text message nudges to students reminding them to come to school, your outcome might be to see a decrease in absences as seen through attendance data.

Next, the Coach encourages you to narrow in on a specific set of users. So here, we've typed in middle school students, which is pretty broad, but this really depends on the technology intervention and its target users. If we click into the example sidebar, you'll notice that this question can be as specific as you need it with perhaps a focus on ELL students or grade level bands. Finally, the Coach asks you to identify who are you comparing these students against. In this case we've written in "other middle school students not using MathTechX".

Lastly, once you've filled in the blueprint formula, you'll see your research question populate at the bottom of the page. Be sure to read through your question as a team and make sure it makes sense. You can edit your responses above until you feel like you have a strong research question.

Think About How You Will Use Your Results Tool (4 minutes)

Facilitator Action:

1. Click "edit" on the "Think About How You Will Use Your Results" tool
2. Scroll to box A
    a. Select "costs"
    b. Write in 5
    c. Select "student"
3. Scroll to box B
    a. Select "increase"
    b. Write in PARCC
    c. Select "test scores"
    d. Write in 4
4. Scroll to box C
    a. Write in 75%
    b. Write in 50%
5. Scroll to box D
    a. Write in "continue using MathTechX" into first free response box
    b. Write in "discontinue MathTechX" into the second free response box
    c. Write in "assess implementation to see if there were issues that might affect the use of the product" into the last free response box
6. Click "save & continue"

Facilitator Language: The Next tool we have in this step is called "Think About How to Use Your Results". This one is an important tool largely because of the way we are doing the analysis and what you enter on this page will affect how your results are determined. Also, we

have found this tool to be incredibly beneficial to think through the decisions you'll be making before you run the evaluation and how evidence can best inform your next steps.

Facilitator Context: *We use a Bayesian approach to analyze the data in the Coach. We take the uploaded student performance data and the district/school leaders' chosen covariates (which are similar features to what you would choose in any regression analysis) and run a bunch of simulations. The output that it gives you is a distribution of the likelihood of all the possible different effects as demonstrated by all the simulations. Based on the desired increase in test points, for example, that the school or district chose as the threshold for "success" the results will tell you a probability of how likely it is that the ed tech application will increase test scores by that threshold or more.*

One big advantage of this model is that by asking the school/district leaders to think through what threshold they want in order to deem the product a success, the Coach requires them to do a little bit more thinking in advance about what success looks like for this particular product. We've often found with districts that this isn't something that is at the top on their minds - they have thought about whether the ed tech works, but not about what it would mean for it to work. Furthermore, the Coach brings awareness to the question about how that success threshold varies based on how much the product costs the district or school.

Facilitator Language: The first box - A - simply asks you to consider how much the ed tech application costs. This is just an estimate and is meant to help determine how confident you want to be in the results. For example, you might want to be more sure that a certain ed tech application moved the needle if you are paying a significant amount for it versus if it were a free product. So for this example, we've input that MathTechX costs about $5 per student.

Next, in box B, you'll want to specify the intended direction of the change in student academic achievement. For us, we want to increase PARCC test score points (which is the third drop down option). Lastly, the Coach asks how much of an increase in test score points you'd like to see for the ed tech to be considered successful. We'll say 4 points.

Then in box C, the Coach explores how confident you want to be in your results. The Coach will be calculating a probability that your ed tech application will increase student achievement by at least 4 points. That probability will be compared to the probabilities that you type in here to define whether your ed tech application was successful or not.

Finally in box D the Coach wants you to think about how you will use your results. For our purposes we will say we will continue to use MathTechX if it has a 75% probability of increasing test score points by 4 points, we will discontinue the use of MathTechX if there is a 50% chance or less that our desired outcomes are likely, and we will assess whether there were implementation issues if the results are inconclusive.

Working with Ed Tech Providers Tool (1 minute)

Facilitator Action:

1. Click “view” on the “Working with Ed Tech Providers” tool
2. Click “done”

Facilitator Language: This next tool is an information guide on things to think about when working with ed tech providers to collect evidence. There are links to understanding the various types of usage data you might get from a provider, as well as a sample discussion guide to start an initial data collection conversation. Lastly, there’s a draft email you can use to reach out to providers to hopefully lessen the barriers experienced by schools/districts when it comes to building productive relationships with providers.

Summarize Context Tool (2 minutes)

Facilitator Action:

1. Click “edit” on the “Summarize Context” tool
2. Type in 09/01/15 for the start data and 05/15/2016 for the end date
3. Click “Practice” & “Supplement” for the type of program
4. Write in “a supplement homework software that enables a flipped classroom” for the purpose section
5. Write in “videos that introduce concepts and practice problems for in-class review” for the key components section
6. Write in “30 minutes daily” for the developer’s provided usage guidelines section
7. Write in “30 minutes daily” for actual usage section
8. Click “Individually” & “To Whole Class” for how ed tech is delivered section
9. Click 7 & 8 for the grade levels section
10. Click “General” for the types of classroom section
11. Click “Mathematics” for the outcomes area section
12. Click “Public” for the type of school section
13. Write in 15,000 for the number of students in the district section
14. Click “Suburban” for the geographical setting section
15. Select “California” for the location section
16. Feel free to list any percentages you’d like for the following sections: race, ethnicity, gender, free and reduced price lunch (FRL), english learners (EL), and/or students with IEPs
    a. As an example, we listed: 3% Asian, 17% Black, 2% Native American, 2% Pacific Islander, 61% White, 15% Other, 34% Hispanic, 66% Non Hispanic, 34% Female, 66% Male, 19% Free Lunch, 22% Reduced Price Lunch, 25% EL and 18% IEP
17. Write in “we had some teacher turnover during the first two weeks of implementation”
18. Click “save & complete”

Facilitator Context: *The options you select in this tool are meant to act like tags and will be carried into the findings brief. The user has a choice to share their findings brief at the end or*

not, but if it's shared, these tags make it so that the evaluation is easily searchable by these various characteristics. It's important to know your audience here and how willing they will be to share this information with the broader RCE community. If it's likely that your audience will not be willing to share their findings brief, then these characteristics are simple a way to log the unique context of the school or district implementation. Additionally, these tags match the What Works Clearinghouse (WWC) which means that should the evaluation meet the WWC standards, it's already tagged accordingly or a user could go to WWC to find proven technologies with these same categories.

Finally, the language below does not go into detail to explain each section as the demo would take too long. Have this tool already completed and talk through the portions at a high level or call out a few areas that might be of interest to your audience like evaluation period or whether it was used in a general or inclusion classroom, etc.

Facilitator Language: The next tool in the Coach is called "Summarize Context" and it has a couple of goals. Partly it's collecting information that fills into the finding brief at the end of the process and it's also collecting information that will be helpful to other users since often we hear from schools and districts that they are curious about how an ed tech product works in a place with similar characteristics. As you go through the tool you're essentially placing tags on key elements of the implementation that will help contextual your evaluation. Additionally, this tool will prompt your to include a description of the tool and how it's intended to be used which can be useful even in internal conversations as you plan for the technology roll out and eventually share results with colleagues and district stakeholders.

Evaluation Plan Tool (3 minutes)

Facilitator Action:

1. Click "edit" on the "Evaluation Plan" tool
2. Write in "The goal of implementing this technology is to increase student math scores on state standardized assessments." into the purpose section
3. Scroll and review each section
4. Click "download" to show an example of plan you can print and share
5. Click "save & complete"

Facilitator Language: The last tool in the planning your research phase is the evaluation plan. The goal of this tool is to give the user a prompt and allow them to pause here and confer with any important stakeholders to make sure everyone is on the same page. Also, if you need to get several staff on board to do certain pieces of the implementation, this evaluation plan will let you assign tasks to certain people. The first text field gives you the option to write in why you're doing the evaluation and what you are trying to accomplish. Then it pulls in a bunch of information from previous tools like your research question, what will be tested and the type of evaluation design you are using. It pulls in the context on how the technology is intended to be used, as well as what your plan of action is based on positive, negative or inconclusive results.

The final part of the tool is the actual evaluation plan where some of the key milestones get pre-populated based on previous responses and other key milestones are there to serve as reminders or to think through the timeline and deliverables with your team. For example, we embedded “check technology usage” (#3) into the evaluation plan because understanding whether the ed tech application is actually being used is key in understanding if you should proceed to the data analysis portion of the Coach or in interpreting your results. You can also hide rows or add additional milestones to this plan based on what your school or district needs. You can download the plan at the end for easy sharing among stakeholders. The overarching goal here is that if the user of Coach actually has to assign various tasks to others, there’s a concrete plan in place to note owners and keep track progress along the way.

Preparing Your Data (3 minutes)

Facilitator Action:

1. Click “Preparing Your Data” step along the top
2. Click “edit” on the “Prepare for Random Assignment” tool
3. Scroll through each section - read the requirements and recommendations and highlight the check boxes once you’ve explained each part to your audience.
4. Click “save & complete”

Facilitator Language: This tool will help you set up your data set in order to randomly create your treatment and control groups. You’ll notice that the first section is already pre-populated in that MathTechX will be used with students that are randomly assigned by groups of students by class. It then walks you through the process of what is required vs. recommended when setting up your data. The Coach also provides specific directions on what your data set should look like, and provides some final questions that serve as a check on the overall quality of the data you’ve collected and compiled.

Random Assignment Tool (3 minutes)

Facilitator Action:

1. Click “edit” on the “Random Assignment” tool
2. Select “no” to the limit of number of classes section
3. Choose the MathTechX test data set that you previously downloaded (this should be in a .csv format)
4. Select “classroom” as the variable that contains the anonymous id that identifies each class
5. Select “pre-test math” as the pretest measure variable
6. Select “atrisk, ell, iep” as the characteristics that should be balanced between the treatment and control groups when randomly assigning
7. Click “Randomize”
8. Click “download revised dataset” and save to your desktop
9. Click “save & complete”
10. Click “edit” on the “Prepare Your Data for Analysis” tool

11. Scroll through the required and recommended data points
12. Click “save & Complete”

Facilitator Language: By the time you’ve reached this tool you have a data set that’s ready to be uploaded into the Coach to create your random assignments. Most of the first details are pre-populated based on previous responses, however, you will have to select whether there is a limit to the number of classes that can be given access to the technology. For our purposes today, we’ll say “no”.

Facilitator Context: *The reason the Coach asks for whether there’s a limit to the number of classes that be given access to the technology is for the purposes of limited licenses. For example, if your district is doing a pilot and there’s a cap on how many people you can offer it to -- say you have 100 licenses to use for the pilot -- then you'd want to answer “yes” to this question and input “100” to make sure that no more than 100 participants are chosen for the treatment.*

Facilitator Language: Then, once you’ve uploaded your data set, you’ll see a new set of drop down options appear. The first drop down asks you to identify the variable that names each of your classes - in this case “classroom” is our variable. Then it asks you to select your pretest measure, which is our pre-test math exam. Lastly, the Coach will want to know if there are any variables identifying the characteristics that should be balanced across the treatment and control groups. In this case, we’ll want to be sure that students who are at-risk, are english language learners and/or have IEPs are balanced across the groups.

Facilitator Context: *Also it’s important to note here that you should only pick really important variables here. You don't want to throw everything in because it can be hard to get balanced groups the more variables you add.*

Facilitator Language: Once we click randomize, we’ll get a chart that explains how large our treatment and comparison groups are, as well as whether the groups are balanced. Similarly, the graph will show a visual representation of the range in effect size of how balanced (or unbalanced) your groups are based on each characteristic selected.

Lastly, now that we have randomly assigned MathTechX for some classes to use, we have to download a revised data set that added a column called “treatment” to our spreadsheet. Once we’ve received our outcome measure results, five months from now, and added it to this spreadsheet, we’ll be ready to run the analysis. The next tool - Prepare Your Data for Analysis - essentially walks you through this process and is very similar to the first tool in this step except that it asks you to verify that treatment status was pulled over in the new data set and it asks you to add in the outcome data.

Facilitator Context: *The "Tools for Other Approaches" drop down is to check out the other tools used in the other research design. In this case, by clicking the drop down and selecting "matching" you would be taken to the matching dashboard tool.*

Analyzing Your Data (5 minutes)

Facilitator Action:

1. Click "Analyzing Your Data" along the top
2. Click "edit" on the "Get Results" tool
3. Choose your updated data file with the treatment column and outcome measures listed
4. Select "post-test-math" as the outcome measure
5. Select "treatment" for the who is using the technology
6. Select "pre-test math, atrisk, ell, iep" for the background characteristics and pretest used
7. Leave at "no cluster" for the cluster variable
8. Select "grade" to get a grade by grade analysis
9. Click "run analysis" (Pro-Tip: This may take a long time - once you get the results, take a screenshot, so that when you're presenting in front of groups you can just pull up the picture of the results instead of having to wait for them to load)
10. Click "save & complete"

Facilitator Language: When we get to this point in the process, we're ready to analyze our data. In our example use case of MathTechX, let's say we have implemented the technology and also completed the PARCC assessment. We've compiled those results into our data set and are ready to have the Coach run the analysis to see if MathTechX actually increased student performance by 4 test score points in our treatment group as compared to students who didn't have access to the program.

The first step is to review all the pre-populated data. Then select your new data file to upload into the Coach. Once the data set is uploaded, new drop down items will appear. You should select "post-test-math" as the outcome measure, "treatment" as the variable that explains who had access to MathTechX and who did not, "pre-test math, atrisk, ell and iep" as the background characteristics and pretest that we used to create balanced groups, "no cluster" to inform the system that we will not be clustering the analysis and finally, "grade" to see results parsed out by both the 7th and 8th grade classes that were using the tool. Once you make all the selections, you can run the analysis. This may take a few minutes.

Upon getting the results, you'll see that we have two statements per grade that make it quick and easy to understand whether MathTechX met our intended outcomes or not. In this case, for 7th grade, there was only a 70.8% probability that it increased student academic achievement by 4 test score points or more. However, in 8th grade there was an 88.8% chance that it had these results. Overall, this means our results were inconclusive, yet we can tell that there may have been a difference in implementation between our 7th and 8th grade classes. Based on what we input into the coach from the beginning, we could say that we'll continue to use

MathTechX in 8th grade and even expand its roll out. However, we might want to reevaluate its implementation in 7th grade and run another evaluation.

Facilitator Context: *First, for those who are more technically inclined, there is a technical appendix you can download at the very beginning of this tool that explains the formula we use to calculate the results. Additionally, in order to protect our users privacy, we've placed disclaimers in red when a user happens to be compiling data to ensure they do not mistakenly upload any personally identifiable information. As a safeguard, we've also instituted a temporary cache. Data hits this cache and then is immediately deleted once you leave that page. While this means you will have to upload your data every time you plan to create groups or analyze your data, it ensures that no data is saved on our servers. Lastly, we have found that many people often confuse the Coach as a platform that measures growth in test scores. The Coach does* ***NOT*** *measure growth. The Coach does* ***NOT*** *compare pretest and posttest scores. Pre-test scores are only used to create similar groups of students between your treatment and control groups to ensure they are starting the implementation at a similar academic level. The analysis only looks at the outcome scores across the groups (in this case their final score on the PARCC assessment for math) and determines if the students in the treatment group end up with scores that are 4 points higher than students in the control group. In other words, the coach looks at differences in outcomes between the two groups, and the design and analysis make sure that they had similar starting points. It can be helpful to clarify this with your audience if questions about student growth start coming up.*

Summarizing Your Findings (3 minutes)

Facilitator Action:

1. Click "Summarizing Your Findings" along the top
2. Click "edit" on the "Share Your Results" tool
3. Scroll through the first couple of portions and explain the information that pulls in from the previous tools
4. Stop at the randomized group characteristics and mention how you can re-label these characteristics if needed
5. Scroll to the end and continue to explain the content
6. Click "download" and explain options, hit cancel
7. Click "complete my evaluation" and explain options, click "no not ready"

Facilitator Language: Our final step in the process, now that we have the results, is to review the findings brief. Once I click into the "share your results" tool you will be taken to a page that pulls in and organizes all the information previously logged throughout the Coach. The first part captures your research question, results, how to interpret those results and the number of students in each treatment vs. comparison group. The next portion outlines the basics of MathTechX and how it was set up and used in a randomized pilot. It's important to note here that you can actually re-label your characteristics if the way there were coded in the data is not optimized for the average user reading the summary. As you get toward the end of the brief, all

of the context you submitted to the Coach is summarized, and it ends with your conclusion and next steps about how to proceed with the product.

You can download the brief in a couple different formats, as well as print off the technical appendix for more details on the actual analysis and calculations. Finally, you can decide whether you'd like to post your findings brief with the wider RCE Coach community which is an option when you complete your evaluation.

So that's an overview of the 5-step RCE Coach process and now we'll take time for some review and questions.

Facilitator Context: *If a school or district decides to share their findings brief, it will be shared with anyone that created a user name/password to the Coach. No personally identifiable information will be shared, since the findings brief only captures the high level results summary.*

For the Q&A at the end, please refer to our FAQ document.