Ed Tech Rapid Cycle Evaluation Coach

Guide: Matching

When it's not possible to create treatment and comparison groups using random assignment, you can use a technique called matching that will create a group of nonusers that is similar to your group of users on observed characteristics.

DESCRIBE YOUR SAMPLE

Before you can match users to nonusers, you will have to make sure the Coach has all of the necessary information about who is or will be using the technology.

1. **Who is using the technology?** The answer should reflect who you identified as your users when writing your research question.

2. **Who is not using the technology?** The answer should reflect who you identified as your comparison group when writing your research question.

3. **Was the technology targeted in any way?** Sometimes technologies are implemented for a specific purpose, such as to provide additional support to low-performing students, English learners, or students on individualized education programs. If you targeted the technology to a specific type of user, you should answer yes to this question.

UPLOADING YOUR DATA

Before you upload your data, refer to our guide, Prepare Your Data for Analysis, to ensure that the file you upload meets the necessary requirements for the Coach to match your participants. Your data file should have one row for each of your participants and one column for each data field (for example, test scores and background characteristics).

The Coach suggests that you create an anonymous ID for each study participant in your file. Be sure to create a key or a file that links the original names or IDs to the new anonymous IDs. You will need this key to know who was assigned to each group and to add outcome data at the end of the pilot period.

Identifying variables

After you upload your data, you will have to tell the Coach which variable names correspond with key pieces of information.

- **Who is using the technology?** Choose the name of the data field that distinguishes who is using the technology from who is not (1 = users, 0 = nonusers).
- **Select your pre-test measure.** It is most important that users and nonusers had similar performance on your outcome of interest before they started using the technology. For

example, if you are interested in examining the effect of a technology on math achievement, you would want students in each group to have similar scores on a math test taken just before using the technology and you would use that math test as your pre-test matching variable and select which variable corresponds with scores here. If you are interested in a technology that improves students' attendance, you would want students in each group to have similar attendance records just before using the technology.

- **Which characteristics matter when matching users to similar nonusers?** Select characteristics of your students that could affect students' academic achievement. You can (and should) try to match your technology users to nonusers on more than one characteristic. For example, if you are matching students, you might want to match on individualized education program or English learner status, as well as characteristics of their teachers, such as years of experience, if the teacher plays an important role in students' use of the technology.

Note: You do not necessarily have to match students on every available characteristic. If you include too many characteristics, the Coach might not be able to find suitable matches. You should include only characteristics that you believe influence the outcome in which you are interested. For example, if your outcome of interest is student attendance, you might not have to include information about the students' teacher, such as years of experience, as it is unlikely to affect student attendance.

- **Should matched students always be in the same grade?** In some cases it is important that matched pairs of students are always in the same grade to ensure comparability. For example, if the pre-test that students take differs by grade, you would want to match by grade. If this is not relevant or is not a concern for your evaluation—for example, if you're using a vertically scaled assessment—leave match any grade selected. Otherwise, please select the name of the data field that indicates the student's grade.