

Posttest Only Quasi Experimental Evaluation Design Using a Comparison Group

Non-equivalent control group posttest-only design involves a study/evaluation in which a control group is utilized as well as a posttest. It is important to note; however, that control groups used by evaluators in a non-equivalent control group posttest-only design are groups that have not been created through random assignment.

NOTE: CNCS generally uses the term “comparison group” (instead of nonequivalent control group) to describe a group of people selected to be as similar as possible to those who receive an intervention from an AmeriCorps program (but who do not receive the intervention themselves) to be used as a comparison. In AmeriCorps, comparison groups are commonly used for impact evaluations when random control trials (RCT) are not possible.

Consider the following example:

Ms. Marshall is a K-12 music teacher who would like to determine whether a computer software program that she has recently implemented with gifted students advances their compositional skills. Ms. Marshall has decided to evaluate students’ compositional skills by scoring the level of complexity of student created compositions.

Since Ms. Marshall **had not conducted a pretest** of students’ composition skills prior to implementing the software program (the intervention), Ms. Marshall decides that she will use a non-equivalent control group posttest-only design as she has implemented the software program so far with only one section of her sixth grade gifted students. Thus, while one group of sixth grade gifted students will act as a comparison group for the study, the sixth grade gifted students that Ms. Marshall already implemented the software program with will serve as the study’s intervention/treatment group.

After students’ complete creating compositions, Ms. Marshall found that sixth grade gifted students whose instruction had been supplemented with the software program created substantially more advanced compositions in comparison to the other group of sixth grade gifted students who were not taught with the program.

Can Ms. Marshall determine that the computer software program advanced gifted students’ compositional skills?

A comparison group, like the one used by Ms. Marshall in the example, provides information to evaluators as to what would occur **in the absence of the intervention**. For instance, Ms. Marshall can use the scores of students’ compositions who were not taught with the software program to determine the level of skill that students who had been taught with the program may have achieved had they not been taught with the program.

Comparison groups also are useful as they allow evaluators to measure the size of the intervention/treatment effect. Of course, information provided by using a comparison group is greatly dependent on how similar the group is in comparison to the treatment group (Green et

al., 2006). As with any situation in which a comparison group is used in a quasi-experiment design, evaluators implementing a non-equivalent control group posttest-only design must consider selection bias (Green, et al., 2006). Selection bias becomes a concern anytime random selection is not used. The absence of random selection makes it difficult for evaluators to determine whether treatment outcomes are due to a treatment or related to differences between groups.

For instance, what if in the experiment Ms. Marshall conducted discussed earlier, Ms. Marshall had implemented the software program with a section of sixth grade gifted students that was an all male class, whereas the comparison group was a class of all female sixth grade students? Can Ms. Marshall be certain that the results of her study are without bias? Groups can differ in numerous ways including in skill level and level of motivation. Since the ultimate goal of quasi-experiments that use a nonequivalent control group posttest-only design is to compare results between pretest and posttest scores of each group – the comparison group and the treatment group (Heiman, 1999), researchers must be certain that differences between the comparison group and treatment group used in the study do not unduly bias the results of a study (Shadish, Cook, & Campbell, 2002).

References

- Green, J., Camilli, G., & Elmore, P. (2006). *Handbook of complementary methods in education research*. New Jersey: Lawrence Erlbaum Associates, Inc.
- Shadish, W., Cook, T., & Campbell, D. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston: Houghton Mifflin Company.