



# Using the Retrospective Post-then-Pre Questionnaire Design



Retrospective post-then-pre questionnaire design is a data collection method that avoids response shift bias.

## What is the retrospective post-then-pre design?

The retrospective post-then-pre design is a popular way to assess learners' self-reported changes in knowledge, awareness, skills, confidence, attitudes or behaviors. In this design, both before and after information is collected at the same time. Instead of collecting data at the beginning and end of the program, the retrospective pre-post approach collects data only at the end by asking participants to self-assess what they know from two viewpoints—*before* and *after* participating. The responses can then be compared to show changes in knowledge, skills, etc.

## How does it work?

At the end of the educational program, participants are first asked to rate their current knowledge, skill, attitude, behavior related to intended educational outcomes “Now” or “After”, as a result of the program. Then, they are asked to

reflect back and rate that same knowledge, skill, attitude, behavior “Before” participating in the program.

## Why use the retrospective post-then-pre design?

At the beginning of a program, it can be hard to “know what we don't know.” Post-then-pre design helps control for response shift bias. Response shift bias occurs when a participant uses a different frame of understanding about a question between the pre and post periods. Response shift bias may lead a respondent to inaccurately assess their pre-program knowledge or behaviors.

### Example

A community educator teaching communication skills to young couples wants to evaluate the program results and administers a pretest to each person enrolled in the program. One question reads “I share my interests with my spouse” and the respondents are to answer on a four-point scale (Always, Often, Seldom, Never).

One respondent indicates he “Often” shares his interests with his spouse. During the course, he realizes that sharing interests involves more than he realized and that he actually does not share his interests very often. Thus, on the course posttest, he responds to the same item with “Seldom”. It appears that the program had a negative effect on behavior whereas the participant's frame of reference on the pretest and posttest had changed. This difference is called response shift and can cause misleading or inaccurate results.

## Strengths of the post-then-pre design

### Reducing response shift bias

As described above, this is a major strength of the retrospective post-then pre design. Extensive research has shown that response shift can mask program effectiveness; the retrospective design reduces or eliminates response shift bias.



## Validity

Studies comparing results from the traditional pre and post design show that results from the retrospective design are more congruent with interview data collected from program participants and leaders.

## Versatility

The retrospective method has been used to evaluate many types of programs for different audiences in varied settings and appears to reduce response shift bias across contexts.

## Convenience

Responding to both measures at the same time is less burdensome and intrusive for participants.

## Simplifies data handling

Using this design allows for analysis of anonymous paired data, whereas the traditional pre-post approach requires linking the paired data, which may compromise anonymity or require a system to code questionnaires to individual participants.

## Limitations of the post-then-pre design

### Recall period

How accurately participants remember over time can vary by audience. Some researchers argue that memories and ability to label them may be biased even within short time frames, and that accuracy continues to decrease with time.

### Self-reports

As a self-report method, the retrospective post-then-pre design is susceptible to bias. This may be the result of social desirability—participants answer as they think the evaluator wants; and may affect accuracy—individual's self-assessments can fluctuate greatly and may not provide a reliable measure of knowledge, skill, attitudes, or behavior.

### Cultural context

Answering retrospective post-then-pre questions may be difficult or inappropriate for certain audiences. Methods and administration may need to vary to accommodate the individual audience's culture, language skills, literacy level, age or stage of life. Some participants may not be familiar with the retrospective approach, so it's important to have clear instructions using plain language. If you are collecting data in person, taking a moment to teach participants how to fill out the survey can reduce errors.

## Further reading

*Starting at the End: Measuring Learning Using Retrospective Pre-Post Evaluations.* Debi Lange and Judy Savageau. AEA365. <https://aea365.org/blog/starting-at-the-end-measuring-learning-using-retrospective-pre-post-evaluations-by-debi-lang-and-judy-savageau>

*What's the Difference? "Post then Pre" & "Pre then Post".* Laura Colosi and Rachel Dunifon. Cornell Cooperative Extension. <http://www.healthymarriageinfo.org/wp-content/uploads/2018/05/What-s-20the-20Difference-20Post-20then-20Pre-20and-20Pre-20then-20Post.pdf>

*Synthesis of Literature Relative to the Retrospective Pretest Design.* John Klatt and Ellen Taylor-Powell. University of Wisconsin Extension. <http://comm.eval.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=31536e2f-4d71-4904-ae5d-056e3280c767>

