

What is the definition of sequence effects and what is an example?

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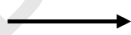
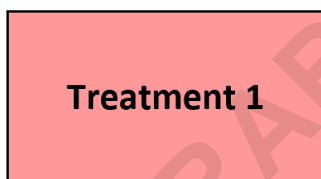
Sequence effects refer to the phenomenon where the order of stimuli or events can influence or alter an individual's response or perception. This effect can occur in various contexts such as in psychology, marketing, and product testing. For example, in psychology experiments, the order in which questions are presented to participants can impact their answers. In marketing, the sequence of ads shown to consumers can affect their purchasing decisions. An example of sequence effects in product testing is when a person's perception of a new product is influenced by the previous products they have tried. Therefore, understanding sequence effects is crucial in designing effective experiments, marketing strategies, and product development.

Sequence Effects: Definition & Example

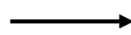
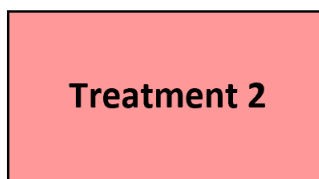
A sequence effect occurs when the sequence of experimental treatments given to participants in a research study interact with each other.

The Sequence Effect

Performance during this treatment affects the next treatment.



Performance during this treatment affects the next treatment.



This tutorial provides several examples of sequence effects along with methods that can be used to minimize sequence effects.

Examples of Sequence Effects

The following examples illustrate scenarios where sequence effects could occur:

1. Quiz Difficulty

Suppose researchers ask participants to take five different math quizzes and assess how difficult they thought the quiz was along with how well they believe they performed at the end of each quiz.

In this study, the difficulty of the previous quiz is likely to affect how the participants rate the difficulty of the current quiz.

For example, if a participant takes an extremely difficult quiz for quiz #1, then a moderately difficult quiz for quiz #2, they may rate quiz #2 as "easy" simply because it was much easier relative to the extremely difficult quiz they just took.

In a similar manner, the difficulty of each previous quiz is likely to affect how a participant rates the difficulty of a quiz they most recently took.

2. Assessing Weight

Suppose researchers ask participants to assess the weight of three different dumbbells, one after the other.

In this study, the weight of the previous dumbbell is likely to affect how heavy the participant thinks the current dumbbell is.

For example, if a participant picks up a 20-pound dumbbell and then a 10-pound dumbbell, they might incorrectly think the 10-pound dumbbell is much lighter than it actually is simply because they're comparing it to the 20-pound dumbbell they just picked up.

3. Assessing Speed

Suppose researchers ask participants to assess the speed of four different sprinters, one after the other.

In this study, the speed of the previous sprinter is likely to affect how fast the participant thinks the current sprinter is.

How to Minimize Sequence Effects

There are two common ways that researchers minimize sequence effects:

1. Increase time between experimental treatments.

Researchers can simply increase the time between the experimental treatments given to the patients.

For example, instead of making participants assess the weight of dumbbells one after the other, researchers could provide 10 minutes in between each assessment so the participant has time to forget the heaviness of the previous dumbbell.

By spacing out the time between experimental treatments, participants are more likely to provide responses that aren't affected so much by previous treatments.

2. Use counterbalancing.

Counterbalancing is when researchers assign experimental treatments in different orders to different participants.

For example, researchers might have five participants assess the weight of three dumbbells in the order of 123, another five participants use the order of 213, another five participants use the order of 312, and so

on.

By using each order the same number of times, we can "counterbalance" any order effects.

Sequence Effects vs. Order Effects

A term that is similar to a sequence effect is known as an order effect. Here's the difference between the two terms:

1. Order Effect: When the order of experimental treatments causes a participant to systematically get better or worse at some task.

For example, participants may get better at some task simply from practice in previous treatments. Conversely, they may get worse at some task by becoming tired or fatigue from participating in previous treatments.

2. Sequence Effect: When the order of experimental treatments interact with each other in some way.

For example, the treatment that a participant was previously exposed to may affect their performance

during a current treatment.

In most cases, this doesn't cause a participant to systematically get better or worse at some task over time; rather, it causes the participant to be less accurate in some way during their current task.

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