Post-lecture Questions IV.4 – Interrupted Time-Series Designs

Study Questions

Let's shake things up a bit, since this is the last of these post-lecture sets of question; let's start at the end and work backwards, this time.

What is the "ultimate" interrupted time-series design? (As in: what is the fanciest/best design for one of these experiments?) For now, you don't have to say why each element of the design is included.

Why is a control measure included in the above?

Why, in general, are two different groups employed?

Why, in general, do both groups get the treatment at some point during the experiment?

Why do the groups get the treatment at different times?

Why are we using an interrupted time-series design (as opposed to, for example, a plain non-equivalent-groups design) in the first place?

1. When you use the basic, most-simple type of interrupted times-series design to test the efficacy of a treatment or intervention _____ .
   (A) you don't have to worry about the effects of time because they never happen
   (B) you don't have to worry about the effects of time because they automatically cancel out
   (C) you get a measure of the effects of time from all of the extra before and after measures
   (D) you can't remove the effects of time from the data

Answers to Study Questions

The "ultimate" interrupted time-series design has two groups of subjects that are physically separated, such as at different universities. Both get the treatment at some point during the experiment, but at different times. This makes it a staggered interrupted time-series. In addition to this, a control measure is also used (at every time point for both groups).

The control measure is included to get a measure of the effect of any local events that might occur at any point during the experiment. Most of all, we need a measure of the effects of any local events that might occur at the same time as the treatment.

Two groups are employed to test whether any change in the targeted behavior or construct was caused by a wide-spread (e.g., national) event that might have occurred at any point during the experiment. As above, we are mostly worried about a wide-spread event at the same time as the treatment.

Both groups get the treatment at some point so that we get twice as much data.

The groups get the treatment at different times because they need to act as the control group for the other group when the latter gets the treatment. So, at the moment that Group A gets the treatment, the conditions for Group B do not change, so that Group B can be the control group for Group A. Conversely, at the moment that Group B gets the treatment, the conditions for Group A do not change, so that Group A can now be the control for Group B.

We're using an interrupted time-series design so that we can get a "feel" for the effects of time by measuring the subjects repeatedly over time. The effect of time on the target behavior or construct can then be subtracted out (using the third or fourth kind of logic for dealing with confounds), leaving only the effect of the treatment.

1. When you use the basic, most-simple type of interrupted times-series design to test the efficacy of a treatment or intervention (C) you get a measure of the effects of time from all of the extra before and after measures.