

## Pre-lecture Notes III.6 – Designs for Aging Research

There are two general approaches to studying aging: you can compare people who are currently different ages or you can follow one group of people as they age. The first approach is called “cross-sectional” research, since it takes a cross-section through the population as they are right now. The second approach is called “longitudinal” research, since you follow a group of people for a long period time. Since both of these approaches are used in psychology, it should come as little surprise that each has its strong points and weak points; most of all, each of these approaches has a specific threat to internal validity (i.e., a confound) to worry about.

The main threat to a cross-sectional study comes from the fact that people who are currently different ages were born at different times. The fancy way of expressing this is to say that the subjects are from different cohorts. A cohort is a group of people defined in terms of when they were born. Famous cohorts include “baby boomers” born right after World War II, Generation X born in the 60s and 70s, and, most recently, Generation CP who are people who only have cell-phones and no land-line, mostly born in the 90s. To the extent that people from different cohorts behave differently, regardless of how old they are now, you have a cohort effect, which is always a confound in a cross-sectional study.

The main threat to a longitudinal design is that, as time passes and people get older, the world changes, too. The fancy way of expressing this is to say that there are time-frame or zeitgeist effects. (Zeitgeist is German for “time ghost.”) To the extent that people might change their behavior because the world is changing, as opposed to changing their behavior because they are aging, you have a different kind of confound to deal with.

There is no easy solution to either of these confounds. In fact, there is no way to avoid them. When you conduct a cross-sectional study, your different-aged subjects will have been born at different times. When you conduct a longitudinal study, the world will “age” at the same time as your subjects. So researchers do not attempt to get rid of these confounds (since they can't). Instead, they use a different trick to deal with these built-in confounds.

The trick that is used capitalizes on the fact that cohort effects and time-frame effects are different. Because they are different, you can have one without the other. For example, it could be the case that people born 50 years ago are different from people born 40 years ago, but not much has changed in the world over the last 10 years in particular. Conversely, it could be the case that whether you were born 50 or 40 years ago doesn't make much of a difference, but the world has changed a lot in the last 10 years.

So, the trick that people use is employ both approaches at the same time. If you find the same results in both cross-sectional and longitudinal research, then the odds of those results both being caused by their own unique confound is very low. For example, if the chance that what is found in a cross-sectional study is really caused by a cohort effect, instead of aging, is about 10%, and the chance that what is found in a longitudinal study is really caused by a time-frame effect, instead of aging, is also about 10%, then the chance of getting the same set of results using both methods could be as low as 1%, which is far below the cut-off for chance (5%) that we use in psychology.

On the other hand, if you don't get the same results using both methods, then you must be very very cautious as to how you interpret the results. If nothing else, you'll need to figure out which – if either – of the patterns of results is the accurate measure of the effect of aging.