

6.7: Mixed Model Example

Consider the experimental setting in which the investigators are interested in comparing the classroom self-ratings of teachers. They created a tool that can be used to self-rate the classrooms. The investigators are interested in comparing the Eastern vs. Western US regions, and the type of school (Public vs. Private). Investigators chose 2 teachers randomly from each combination and each teacher submits scores from 2 classes that they teach.

You can download the data at [Schools Data](#).

If we carefully disseminate the information in the setup, we see that the US region makes sense as a fixed effect, and so does the type of school. However, the investigators are probably not interested in testing for significant differences among individual teachers they recruited for the study; more realistically, they would be interested in how much variation there is among teachers (a random effect).

For this example, we can use a *mixed model* in which we model *teacher* as a random effect nested within the factorial fixed treatment combinations of *Region* and *School type*.

This page titled [6.7: Mixed Model Example](#) is shared under a [CC BY-NC 4.0](#) license and was authored, remixed, and/or curated by [Penn State's Department of Statistics](#).