

Research and Randomization: Tools for Meaningful Statistics

Lead Presenter: Dianna Spence

Co-presenter: Gregg Velatini

We show examples of two strategies that can make statistics meaningful to students, and discuss how these strategies can complement one another. The first strategy is the use of authentic student-directed research projects, in which students are responsible for defining research variables, collecting data, organizing the data, and conducting appropriate analyses. The second strategy is the use of randomization, both to introduce the logic of statistical inference, and as a legitimate alternative to theoretical tests (e.g., t-test). Randomization is particularly useful when conditions and assumptions for a theoretical test are not met or cannot be verified. Both methods help students focus on the underlying concepts of statistics, rather than rote processes. The use of both methods together can be especially powerful.

Target grade levels: 10-12, College