



Randomized Controlled Trials

THE GOLD STANDARD OF EXPERIMENTAL DESIGN

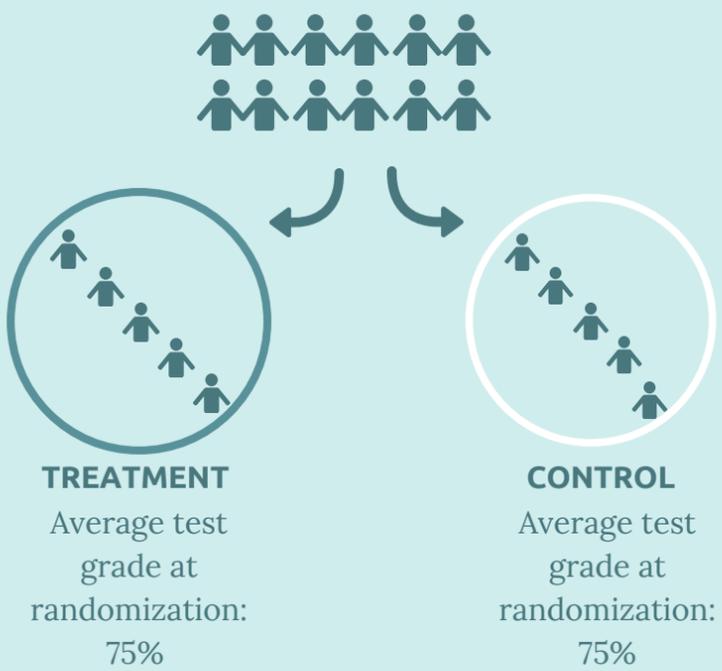
Motivate Lab

Randomized controlled trials are a research method that involves randomly assigning participants to receive the treatment condition (i.e., an intervention) or the control condition (i.e., the condition the treatment condition is compared to) to test whether a particular intervention or program causes differences between people on a particular outcome.

EXAMPLE

To examine whether a growth mindset intervention improves test scores for 7th grade students, researchers randomly assign some students to participate in the growth mindset intervention (i.e., the treatment condition) and the other students to a condition that did not include a growth mindset intervention (i.e., the control condition).

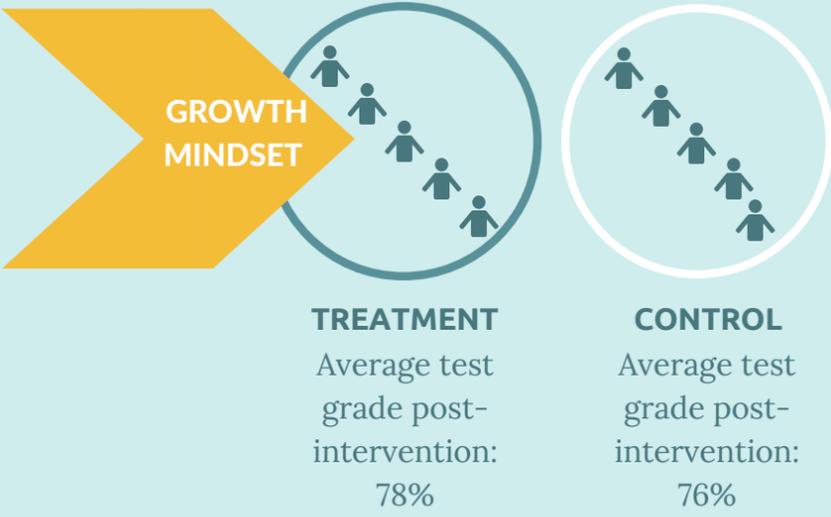
STEP 1: RANDOMIZATION TO CONDITION



Because we used random assignment, we would expect the academic ability and performance of students in both the growth mindset and control group to be equivalent prior to the intervention, meaning that if differences existed after the intervention, they could be attributed to the intervention.

Randomization allows researchers to weed out all systematic differences between the treatment and control groups except one: the experimental group they are assigned to. In this way, randomized controlled trials give researchers more confidence that the outcomes they observe are, in fact, attributable to their intervention.

STEP 2: INTERVENTION



If we randomize students to the growth mindset or control conditions in the first week of the semester, and then compare their grades at the end of the semester, we can determine if the growth mindset intervention caused differences in their grades at the end of the semester.

WANT TO LEARN MORE?

CONCEPTUAL OVERVIEWS

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston, MA: Houghton Mifflin.

EMPIRICAL EXAMPLES

Growth mindset

Yeager, D.S., Romero, C., Paunesku, D., Hulleman, C. S., Schneider, B., *Hinojosa, C., *Lee, H. Y., *O'Brien, J., Flint, K., Roberts, A., Trott, J., Walton, G., & Dweck, C. (2016). *Designing Social-Psychological Interventions for Full-Scale Implementation: The Case of Growth Mindset During the Transition to High School*. *Journal of Educational Psychology*, 108(3), 374-391.

Purpose & Value

Hulleman, C. S., & Harackiewicz, J. M. (2009). *Promoting interest and performance in high school science classes*. *Science*, 326, 1410-1412. doi:10.1126/science.1177067.

Tibbetts, Y., Priniski, S. J., Hecht, C. A., Borman, G. D., & Harackiewicz, J. M. (2018). *Different Institutions and Different Values: Exploring First-Generation Student Fit at 2-Year Colleges*. *Frontiers in Psychology*, 9, 502.

Social Belonging

Walton, G. M., & Cohen, G. L. (2011). *A brief social-belonging intervention improves academic and health outcomes of minority students*. *Science*, 331, 1447-1451. doi:10.1126/science.1198364