

## Study #1

A graduate student, desperate to get a job, takes 30 of the shortest and most easily obtained survey measures and creates a pair of long questionnaires. The first questionnaire includes 15 of the indices and categorizes them as independent variables (IVs), and the second questionnaire includes the remaining indices categorized as dependent variables (DVs). The student then recruits 2,000 Mechanical Turk workers for pennies per hour, and sends out the questionnaires separated in time by 2 months. The respondents fill out the surveys in minutes in order to maximize their effort-to-pay ratio. At the end of the 2 months, the  $30 \times 30$  correlation matrix generated by this process is analyzed, and this near-random data produces 20 correlations that are significant at the .05 level of probability level, some of which cross the Time 1 – Time 2 divide. Half of the correlations make no sense whatsoever; however, one could weave a plausible post hoc narrative that integrates theories from several different literatures to explain these results among the remaining ten statistically significant correlations. Some of these findings were totally unanticipated (and thus novel), and some were even counterintuitive (thus challenging the current knowledge base), and thus, the causal model that linked the 10 together might be well-received in journals that emphasize those two criteria.

The student converts some of the IVs and DVs to mediators based on the results and the post hoc narrative, and then presents the results as an a priori causal model that is written up and published in a top journal. The study attracts a great deal of attention, because of its novelty and counterintuitive nature, and several other research teams try to replicate the findings. None are able to do so, and many of these subsequent findings wind up unpublished because they were essentially reporting null results. Eventually, however, enough direct replications and indirect replications (i.e., reports of the parameter that were not directly intended as replications or part of a formal hypothesis) seep through the literature to allow a meta-analytic examination. This meta-analytic follow-up, based upon a sample size 30 times larger than the original study, fails to support any of the inferences reported in the original article and provides the best true estimates (near zero) of all the parameters that were part of the original study. Researchers in the field eventually abandon the model, and the field moves on to other models. Many people speculate on whether the graduate student was incompetent, unethical, or just very lucky, but in the end, everyone moves on to better, more robust models.