Series Editor's Note

This book deals with a very common problem in both basic and applied research. In basic research, researchers often have an independent variable and they seek to know if the effect of the independent variable changes as a function of some continuous variable (e.g., age or a baseline score). That is, they are interested in understanding the limits of the effect of the independent variable on the dependent variable. In applied research, there is often interest in the ability of a variable to predict another variable. However, there is the concern that the prediction function may vary by gender or race. In both cases there are two variables, one categorical and the other continuous, that explain an outcome variable. The concern is that the two interact to explain the outcome. Alternatively and more commonly, it is said that one variable, usually the categorical variable, *moderates* the relationship between the other two variables.

Interest in this type of question is not just academic. Employers often use tests to make decisions to hire workers. They have prior evidence that a test predicts worker productivity. The following question is very important: Does the test predict the productivity of men and women equally well or of Whites and minorities equally well? The answer has important implications for the employer, the test makers, potential and current employees, lawyers and judges involved in discrimination lawsuits, and the general public. The answer to the moderation question can affect people's lives and can cost millions of dollars.

In this book, Herman Aguinis shows that there is a straightforward approach to the moderation question, which is to perform moderated multiple regression analysis, MMR. He presents a variety of contexts in which one would apply MMR and explains the relevant equations, graphs, and computer software.

Although questions involving moderator variables are common and in some ways easy to analyze, there are many subtle problems that can make the estimation and interpretation of results much more complicated. This book details those problems. First and foremost is the problem of power. To have a reasonable chance of yielding a statistically significant result, tests of moderation often require prohibitively large sample sizes. It is quite common for sample sizes on the order of 800 cases to be needed. This problem of low power often went unrecognized in the past, as shown by the reviews of previous literature mentioned in this book. Students planning dissertations in which they wish to test moderator hypotheses would be well advised to study carefully Aguinis's analysis of the low-power problem. No one wants to spend a year of his or her life doing a study that has only a 20% chance of working.

A host of other problems and issues are explored in the book. Here are some: Prediction errors have different variances group to group, mathematical functions for the relationship between the predictor and the outcome are often nonlinear, there are alternatives to dummy coding of the categorical variable that should be considered, and there is risk of measurement error in the predictor variable—to name just a few. For each of these, Aguinis clearly details the problem, illustrates it with a data set, and then gives explicit strategies for the solution to the problem. Often a computer program would be of great assistance in finding these solutions; Aguinis has written several such programs and has made them generally available (on the Web site *www.guilford.com/ aguinis-materials*). I strongly urge readers to download the data sets that Aguinis discusses and redo his analyses, as well as to try out the methods detailed by him on their own data.

Although some of the topics that Aguinis discusses are complex, he explains these difficult problems using plain language, instead of resorting to the esoteric Greek formulas that we methodologists love to use—yet he still manages to detail that complexity. He offers a rich array of examples from various disciplines in the social and behavioral sciences to illustrate nuances in the solutions to MMR problems, surgically dissecting them, and providing researchers with clear and explicit guidance to the detection of and the answers to the moderation question.

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