*Strategies and Tactics of Behavioral Research, Third Edition*
New York: Routledge

The first edition of *Strategies and Tactics of Behavioral Research* appeared in 1980, followed by a second edition in 1993 and a third in 2008. Longevity is a meaningful measure of a book's success, and it is noteworthy that *Strategies and Tactics of Behavioral Research* has been continuously in print for nearly three decades. Its authors, Jim Johnston and Hank Pennypacker, are prominent behavior analysts, and it is unsurprising that their work has endured. The most recent edition is 383 pages in length and comprises 13 chapters divided into four parts.

Part 1 (“The Natural Science of Behavior”) features chapters on science and scientific behavior, behavior as a scientific subject matter, and experimental questions. This unit provides an introduction to the scientist as a behaving organism and to the behavior-analytic viewpoint in general. Johnston and Pennypacker point out that “it is important to recognize that the behavior of scientists, just like the behavior of all human and nonhuman animals, is as much a part of nature as any other scientific subject matter and can be approached with the same experimental tools” (p. 4). This is an invaluable theme that recurs throughout the book. In addition, Part 1 is highly effective in emphasizing the importance of experimental questions in scientific research.

Part 2 (“Measurement”) includes chapters on selecting and defining response classes, dimensional quantities and units of measurement, observing and recording, and assessing measurement. This unit outlines methods for selecting response classes, defining them in terms of their controlling variables, and establishing criteria to observe and record them.

Part 3 (“Design”) features chapters on behavioral variability, steady states and transitions, strategic issues in experimental design, and creating experimental designs. Basic research designs, along with their potential benefits and pitfalls, are described in detail in this section. Particularly strong in this unit is the section on turning designs into experiments. In it, the value of a flexible approach to research is emphasized. The hallmark of this approach is a willingness to alter the design of an ongoing experiment if incoming data suggest that a change is warranted.

Part 4 (“Interpretation”) contains chapters on analyzing behavioral data and interpreting experiments. In this section, the authors discuss data-analysis strategies and provide a general word of caution with respect to the use of inferential statistics. They also consider in some detail the sources of control of the interpretive behavior of the investigator.
Clearly, the third edition of *Strategies and Tactics of Behavioral Research* explores a wide range of topics that should make the book of great value to aspiring and established behavioral researchers. To determine whether that is the case, we evaluated the book from three different perspectives.

The first reviewer (CC) will soon receive an undergraduate degree from a behavior-analytic psychology program and is planning to begin graduate study next fall. He read the book independently and summarized what he learned as follows: "As a prospective graduate student, I found this book to be a good tool for understanding methodological practices in terms of the scientist’s behavior and the likely consequences of different courses of action. According to Johnston and Pennypacker, the key to understanding how science works lies in acknowledging that scientists are behaving organisms and science is really no more than the behavior of scientists.

It is important to acknowledge that behavior is rooted in the organism’s biology and only occurs at the level of the individual. If we wish to study the effects of some variable or intervention on behavior, we must look for outcomes by examining the behavior of individuals. Our task as behavioral scientists is to discover through experimentation the dimensions of behavior and how they relate to other natural phenomena and not to force nature to fit our preconceptions. Before an investigator begins a study, he or she must have some experimental question that can guide methodological decisions and interpretations. A good experimental question about behavior is a carefully worded expression of the investigator’s best judgments about the direction and focus of his or her interests. The experimental question’s most important role is in guiding the selection of the independent variable.

A significant challenge for a scientist is selecting participants whose behavior will serve as the dependent variable in the experiment and defining and measuring the behavior of those participants appropriately. The primary concern here is to define target behaviors in ways that closely approximate the way individual responses come together as classes in nature. It is paramount that the target behavior suits the experimental question. Once the target behavior is selected, an appropriate detection system is selected and the behavior is measured. Measurement accomplishes three functions: description, comparison, and prediction. The overall goal of behavioral measurement is to produce data that will guide correct and meaningful interpretations by the researcher or practitioner. What the researcher is most interested in are changes in responding produced by initiating a new condition.

The steady-state strategy can provide a clear and complete picture of each participant’s behavior under each phase or set of conditions in an experiment. The key to identifying the effects of the independent variable in a study is making sure that the only thing that differs between an experimental condition and its matching control condition is the presence of the independent variable. One of the strengths of the steady-state strategy is that it insures ongoing opportunities to assess earlier decisions and adjust certain features to improve experimental control. The pursuit of a high degree of experimental control is one of the hallmarks of the approach to experimentation described in this volume. Once someone understands the reasoning underlying comparisons between control and experimental conditions, many possibilities for arranging these comparisons—that is, the named designs characteristic of applied behavior analysis—are easy to understand.
Although I learned much from the book, it was not easy to read and did not provide sufficient guidance regarding data analysis, how to deal with problems encountered during a study, or the range of conditions under which behavior-analytic research methods are appropriate.

The book was evaluated independently from a somewhat different perspective by a second reviewer (MW), who is an advanced graduate student working on a doctorate in behavior analysis. He wrote, “As a relative neophyte when compared to the authors of this book, I found writing a review of Strategies and Tactics of Behavioral Research to be a daunting task. Johnston and Pennypacker are well-established behavior analysts who have enjoyed long and distinguished careers. Their commitment to the rigorous scientific study of behavior is evident throughout the volume.

According to the Preface, the third edition of Strategies and Tactics of Behavioral Research incorporates many newly added features, including a more accessible writing style than in previous versions and more examples based on research in applied settings. It also contains more learning aids in the form of study guides, summary tables, boxed discussions of special topics, figures, chapter summaries, suggested readings, discussion questions, key terms with definitions, and a glossary.

In general, the book contains a wealth of useful information. Comparing the current edition to prior ones indicates that most of the additions are useful. Also appreciated are the occasional attempts at humor, which add a much-needed respite from material that can, in general, be very dry. On the downside, many of the suggested readings are dated. In fact, of the 40 suggested readings listed in the book, all but eight were published before 1993. While it is important to include references to seminal literature (e.g., Sidman, 1960), the reader would be well served by more examples of current applied research, especially in light of the increasing number of master’s-level practitioners in the field of applied behavior analysis.

Also noteworthy is Johnston and Pennypacker’s suggestion that the term frequency is preferred to rate when describing the ratio of count divided by unit of time, in part because “rate” has a number of additional meanings. Most behavior analysts define frequency as count only and rate as frequency divided by unit of time (e.g., Catania, 1998; Kazdin, 1982; Miltenberger, 2004; Newman, Reeve, Reeve, & Ryan, 2003). This discrepancy in the use of the name of the fundamental datum of the field will perhaps confuse students. In fairness, disagreements regarding appropriate terminology are not uncommon among behavior analysts, and Johnston and Pennypacker consistently define terms clearly and precisely.

While not without its minor flaws, the current edition of Strategies and Tactics of Behavioral Research is a strong treatment of behavior-analytic research methods. Both advanced undergraduate and graduate students in behavior analysis can benefit from the material in this book and, hopefully, use it to advance the field.”

A final perspective is offered by a senior behavior analyst (AP), who has conducted behavior-analytic research and taught research methods courses for more than 30 years. He wrote, “Twenty-five years ago, on the recommendation of a colleague, I adopted the first edition of Strategies and Tactics of Behavioral Research as the textbook for a research methods in applied behavior analysis course offered by the psychology department at Western Michigan University. The book’s contents were good, and it provided a
throughout coverage of the approach to research characteristically favored by behavior analysts.

I did not, however, like the way the book was written. In my view, the signal-to-noise ratio was low and the verbiage ponderous and occasionally pretentious. Moreover, the book provided little in the way of practical guidance for researchers. Overall, the book’s weaknesses outweighed its strengths—which were considerable—and I used it for only one semester. When the second edition appeared, I perused it with interest. To my disappointment, it had the same negative features as its predecessor and I could not convince myself to adopt it as a textbook, although I did recommend it to students as a reference, as I had done for the first version.

Upon receiving the third edition, I noted with interest that the back cover proclaimed that it was “rewritten in a straightforward and accessible style for students without a background in this area.” Having read the third edition, it is apparent to me that revisions have been made and that the book is somewhat more accessible than prior renditions. But straightforward and accessible it is not. Consider, for example, the notation of experimental designs that Johnston and Pennypacker introduce in Chapter 10. The notation is unconventional, requires considerable effort to master, and is not especially useful in understanding experimental arrangements. The opportunity cost of mastering the notation is considerable and is probably not justified, especially for those with limited time to devote to learning about research methods, such as aspiring practitioners. Such individuals are apt to find Strategies and Tactics of Behavioral Researchers a hard read, with much tangential and uninformative material. Consider the following passage:

A third property of behavior may seem less obvious than temporal locus and temporal extent, but it is no less important. For any class of responses, individual responses can occur repeatedly, which suggests the property of **repeatability**. The dimensional quantity reflecting the recurrence of an event is called **countability** (or just “count”). We describe how much countability is observed in terms of the **cycle**. The cycle is the unit of measurement used in the natural sciences that specifies one instance of whatever is being observed. This is not a term that is widely used in behavioral research and practice, however. For example, it would be common to report that a participant emitted 32 responses during a session. The more technically correct reference of 32 cycles of the response class maintains the distinction between the unit of analysis (the response class) and the unit of measurement (cycles). Technicalities aside, the more common reference is acceptable. (p. 101, emphasis in original)

If the technically correct designation is rarely used in behavioral research and practice (which appears to be true, given that I have never seen it used) and the common reference is acceptable, why devote a paragraph to the issue? Doing so certainly does nothing to benefit readers who have less time to focus on learning about research methods.

As with its predecessors, considerable effort is required to separate the wheat from the chaff in the current edition of Strategies and Tactics of Behavioral Research. For those truly committed to behavior analysis, the effort will be richly rewarded, for there is much of value in the book.
In a real sense, Strategies and Tactics of Behavioral Research reminds me of Skinner’s (1957) Verbal Behavior. Each contains more than a reader needs to know to understand the essentials of the topic, and neither is an easy read. Nonetheless, each provides masterful coverage of its subject matter. Strategies and Tactics of Behavioral Research is not an especially good introduction to behavior-analytic research methods—it is too comprehensive and complex to serve that purpose—but it is a good resource for readers with substantial knowledge of the fundamentals of behavior analysis. Like my junior colleagues who read Strategies and Tactics of Behavioral Research, I evaluate the book positively, although not without reservations.”

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References
