

This Week's Citation Classic

NUMBER 45
NOVEMBER 5, 1979

Kirk R E. *Experimental design: procedures for the behavioral sciences*.
Belmont, CA: Brooks/Cole Publishing Co., 1968. 577 p.
[Baylor Univ., Psychol. Dept., Waco, TX]

A detailed coverage of the designs and statistical techniques that have the greatest potential use in behavioral and educational research is provided. Extensive coverage is given to multiple comparison procedures, trend analysis, measures of strength of association, and the relative efficiency of designs. Complex experimental designs are seen as combinations of two or more simpler building block designs. [The Science Citation Index® (SCI®) and the Social Sciences Citation Index™ (SSCI™) indicate that this paper has been cited over 1,365 times since 1968.]

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October 2, 1979

"I started the first draft of *Experimental Design: Procedures for the Behavioral Sciences* in the spring of 1963. It was published in October, 1968 – three and one-half years later than I had anticipated. I discovered during the process that authoring a book requires a major commitment of time and energy. But even if I had looked to an eight or ten year commitment it would not have deterred me, because by 1963 I was convinced that I had found something important to say about the design and analysis of experiments. At the time, I was teaching a two-semester graduate course on design and changing texts every other year. The students in my classes, behavioral science and education majors, were bright but mathematically unsophisticated. In a typical class only six percent had taken courses beyond college algebra. The textbooks available to me belonged to one of two categories: the

excellent mathematically-oriented books that carried a calculus prerequisite, and the once-over lightly ones that emphasized rule of thumb procedures and covered only the most elementary designs. Books in the first category were not appropriate for my students, and I was not satisfied with those in the second. I saw a need for something in between, a readable book that covered both elementary and complex experimental designs without glossing over underlying assumptions or omitting important algebraic proofs. Since *Experimental Design* has become one of the most widely cited books in its field, such a need apparently existed.

"I had always assumed that authors write Chapter 1 first, Chapter 2 second, and so on. But I found myself writing Chapter 4 first, Chapter 8 second, and Chapter 7 third. Chapter 1 was written last. The three substantive contributions in the book which I consider the most important were: (1) development of my classification system for experimental designs accompanied by an abbreviated nomenclature, (2) identification of three designs –the completely randomized, randomized block, and Latin square designs – as building blocks from which all complex designs can be constructed, and (3) a more extensive treatment of multiple comparison procedures along with recommendations for their use. At least one reviewer did not share my enthusiasm for the 'simpler' nomenclature. He wrote, 'The author has a penchant for acronyms (who would guess that YBIB-t was a Youden square balanced incomplete block design?)...that would make the most imaginative Department of Defense official green with jealousy.'¹

"*Experimental Design* contains numerous elements of personal significance. The book jacket, for example, sports the colors of Ohio State University, my alma mater, and the square matrix on the cover was inspired by the one on the dust jacket of *The Design of Experiments*, the classic text by Sir Ronald Fisher, that introduced me to the field."

1. Taylor P A. Review of *Experimental design: procedures for the behavioral sciences* by Roger E. Kirk *Educ. Psychol. Meas.* 29:218-21, 1969.