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Lewis R. Aiken. Rating Scales and Checklists: Evaluating Behavior, Personality, and Attitude. New York: John Wiley and Sons, 1996, 312 pages + DOS-formatted disk, \$45.00.

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Given that rating scales and checklists are so ubiquitous, this book by Aiken on the use of rating scales should be an invaluable resource to social scientists and to anyone who comes in contact with the social sciences either as a researcher or as a consumer. The book consists of eight chapters, three appendices, and an IBM-formatted disk containing many useful programs for assessing the quality of rating data.

The first chapter is an introduction to the scientific method of conducting research and underscores the ubiquity of rating scales in the social sciences. The next three chapters focus on the psychometric theory underlying the construction and appropriate use of rating scales—the criteria for good rating scales are spelled out in detail. Chapter 5 describes the use of rating scales and checklists in I/O psychology, consumer psychology, human factors engineering, and organizational behavior. The use of rating scales in educational assessments are covered in Chapter 6, whereas Chapter 7 addresses the use of rating scales in personality assessment. Finally, the last chapter focuses on the use of rating scales and checklists in the assessment of attitudes. A comprehensive glossary of technical terms is provided in Appendix A.

On the accompanying disk, there are 71 computer programs grouped into 10 categories (all described in Appendix B). There is a category focusing on analyzing errors in ratings (4 programs in that category) and another category focusing on scale transformations and norms (8 programs). Six programs are provided for item analysis, enabling the user to compute item difficulty, plot item response curves, compute biserial correlation, and so on. There are 9 programs for constructing and scoring rating scales and checklists, including bipolar, forced choice, and semantic differential scales, among others.

Another category (6 programs) computes coefficient alpha, Kuder-Richardson reliability coefficients, Kappa coefficients, intra-class coefficients, concordance coefficients, and the absolute difference coefficients that Aiken developed in his research. Given that computing some of these coefficients in standard computer packages (e.g., SAS) involves

programming, these programs are an invaluable source to anyone using rating scales.

Ten programs to facilitate sample selection (in matched groups design, random assignment of observational elements to conditions, constructing Latin Squares for counterbalancing, etc.), nine programs on nonparametric statistical tests of hypotheses (Fisher exact probability test, Friedman two-way analysis of variance with ranks, sign test, etc.), and five programs to assess the significance of absolute differences, also add value to this book.

A list of commercial suppliers of rating scales and related psychometric instruments is provided in Appendix C. However, a description of the scales, the psychometric properties of these scales, and guidance concerning where they can most appropriately be used are missing and would have been helpful. Providing a list of suppliers of commercial scales with no further guidance is not very useful, other than serving as a starting point to a reader who is interested in commercial applications of rating scales. Perhaps the next edition of this book can incorporate a review of the commercially available rating scales (with respect to psychometric properties as well as other factors such as length, time to complete, ease of completing, fakability, etc.). However, the second chapter does provide a good summary of the sources of information that a consumer of rating scales could refer to for more information.

Given the popularity of rating scales, this book covers material that will interest a wide audience. Further, the author's writing style is very engaging (even when he is discussing psychometrics!) and he manages to hold the attention of the reader throughout. The programs are a very useful addition to the book, enabling the reader to experiment and comprehend the concepts being discussed. More important, these programs come in handy for computing many useful statistics in one's research—even if one does not read the book, the programs will be a useful buy. The exercises at the end of the chapters are also helpful for pedagogical purposes.

Reflecting on the book, I must note a number of omissions. The book exclusively focuses on psychometric issues. No mention is made about the research on how respondents infer meaning from items. The literature on cognitive psychology that focuses on linguistic variables influencing the understanding of (and subsequent response to) questionnaire items is not even mentioned. Research has identified several linguistic variables as sources of response variance and bias. Syntactic properties of the items, such as use of double negatives, and semantic properties that affect psychological complexity need to be considered in constructing rating scales. A review of the literature on psycholinguistics would enhance the breadth of coverage in this book.

Also missing is a comprehensive discussion of the social aspects of obtaining rating data. In I/O psychology, there is an extensive literature on how ratings of performance are affected by the goals of, and interactions between, individuals. In the personality assessment literature, the socioanalytic model of R. Hogan (1991) stresses how responses to a personality questionnaire are affected by social dynamics. Aiken briefly mentions that judgments of other people are never made in a vacuum. His cryptic reference to political, social, and economic factors that affect ratings needs to be expanded.

A comprehensive understanding of rating scales should also take into consideration the results from survey research on issues such as question order, number of response categories that are optimal, and caveats to keep in mind when writing the questions. For example, consider the issue of question order in survey research that translates to whether the order of items affects responses in a rating scale. Will obtaining ratings of overall job performance after obtaining ratings on individual dimensions increase interrater agreement in rating overall job performance (due to a common frame of reference engendered among raters rating the same individual dimensions)?

Even for a book focusing exclusively on psychometric aspects of rating data, there are notable exclusions. For example, there is no mention of Wherry and his theory of rating. Although the author discusses the use of rating scales in computerized adaptive tests, the research on the equivalence of the different modes of administration is not covered. Properties of ipsative scales need to be more clearly delineated.

The author mentions that researchers using Likert scales should ensure that they have an interval scale and discusses methods developed by Thurstone, Guttman, and so forth. The Rasch's binomial logistic model, scalogram analysis, and scale discrimination techniques are some of the techniques presented. However, no mention is made of the concern that using multiplicative composites of interval scales in correlational analysis with another interval scale is affected by scale transformations. In discussing the use of rating scales to assess change in attitudes, the author notes the availability of a variety of analytic techniques, such as partial correlation, cross-lagged correlations, and time-series analysis. A discussion of the merits and demerits of these techniques would be a useful addition to the next edition of this book (especially what these techniques do not do). Mention of the alpha, beta, and gamma changes (caused by scale changes, true attitude changes, etc.) will also be useful.

In summary, anyone who comes into contact with the social sciences will find this book very useful. The 71 accompanying programs will be invaluable to any user of rating data. The book is written in an easy, understandable and engaging style. It is a good introductory book on

rating scales that I recommend to everyone. I also hope that a more authoritative and comprehensive treatise on rating scales—perhaps the second edition of this text—becomes available in the near future.

REFERENCE

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