
Book Review

Using Statistics in Small-Scale Language Education Research: Focus on Non-Parametric Data

Jean L. Turner, ESL & Applied Linguistics Professional Series. New York, NY: Routledge. (2014) (344 pp.) ISBN: 9780415819947 Price \$53.90 (5,630 yen)

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The ESL & Applied Linguistics Professional Series, published by Routledge, is a wide-ranging series containing some 84 manuscripts covering the entirety of second-language theory and research. Each volume is designed to act as a primary textbook in a graduate course or as a personal training manual for professional development. Turner's *Using Statistics in Small-Scale Language Education Research: Focus on Non-Parametric Data* is a research-oriented addition to the series which will be appreciated by those aiming to improve their practical knowledge in second language research methods. The books in this series are highly detailed with a focus on practical examples, and this volume is no exception.

As noted by the author, a large amount of second language research is conducted by educator-researchers, typically with their own classes. This book is aimed specifically at people conducting research in these situations, with a heavy focus on non-parametric statistics and the R software package, a statistical analysis program that is free to download and use. Non-parametric statistics are used for analyzing small ($n < 30$) and/or non-random sets of data (Hatch & Lazaraton, 1991). A single high-school class would be a good example, as

they typically contain a group of around 30 students who were not randomly selected by the researcher. Parametric statistics are more powerful than their non-parametric cousins but have strict requirements for their use that typically require large, randomized trials. As Plonsky (2013) noted, quantitative statistics are often poorly employed in second language studies, with a noticeable lack of the basic conditions required for high quality research. Even in cases where statistical methods are appropriate, under-reporting of important data is common (Larsen-Hall & Plosky, 2015). I have seen many presentations and research papers that employed statistical methods that were inappropriate for the research in question, so this book is surely a welcome addition.

The key contribution of this book is its unique focus on non-parametric methods, which I would argue are usually the most appropriate for second language research. With the recent rise of mixed methods approaches (quantitative and qualitative together) and action research (very small-scale, practical research) (Onwuegbuzie & Collins, 2007), this volume is likely to find a large and appreciative audience. The book is intended to take readers with little knowledge and bring them to practical mastery of the most useful statistical methods. The first section, *Foundations*, addresses research design and descriptive statistics. Section II, *Analyzing Differences Between Two Sets of Data*, focuses on t-tests used with parametric statistics and Wilcoxon tests for non-parametric statistics. Section III is titled *Analyzing Differences Among More Than Two Sets of Data* and takes the reader through ANOVA used with parametric tests, and Kruskal-Wallis and Friedman's tests for non-parametric statistics. The fourth and final section, *Analyzing Patterns Within a Variable and Between Variables*, considers the use of the correlational tests Pearson's PMC, Spearman's rho, Kendall's tau and Chi-squared tests.

Going into more detail, the first section, *Foundations*, deals with the basic concepts of sound research and descriptive statistics, providing detailed explanations and examples; three published studies in the university context are used to explain the different types of research that may be appropriate for educator-researchers. The following two sections take the reader through the various parametric and non-parametric methods, providing highly detailed

explanations of the theoretical background behind each method mentioned above and an illustrated, step-by-step guide to employing them in R. Turner does a good job of staying away from overly technical language and also provides extra online training materials. These downloadable materials (www.routledge.com/cw/turner) provide a refresher on the key points from the book, along with example tests, practice datasets and answer keys for the end-of-chapter assignments.

The book's key strengths, namely the incredible level of detail into the how's and why's of each method, and step-by-step practical instructions are a double-edged sword that results in a dense 344-page tome. By comparison, Lowie and Seton's (2013) *Essential Statistics for Applied Linguistics*, which also covers both parametric and non-parametric statistics, is less than half the length. For this reason, I would recommend that non-experts like myself pair Turner's work with one of the more general reference texts such as Dörnyei's (2007) *Research Methods in Applied Linguistics*. Ultimately, *Using Statistics in Small-Scale Language Education Research: Focus on Non-Parametric Data* is an excellent training manual for both aspiring second-language researchers and those wishing to brush up on their research skills.

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