

## Telegraphic Reviews

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*The Challenge of Developing Statistical Literacy, Reasoning and Thinking.* Dani Ben-Zvi & Joan Garfield (Eds.). (2004). Dordrecht: Kluwer/Springer. 423 pp. + xiii. ISBN 1-4020-2277-8 \$171 (hb).

Statistical literacy, reasoning, and thinking are emerging as a significant new field in mathematics education research, fueled by the inclusion of these aspects of statistics in mathematics curricula at all levels. The distinction between the terms *literacy*, *reasoning*, and *thinking* has not always been clearly formulated. This book clarifies the differences and issues associated with the terms while presenting cutting-edge research in this field, based on the results reported at several international conferences (Australia, 2001; Israel, 1999; Singapore, 1998; USA, 2003). The rationale for, and goals of, the book are clearly presented: "Our goal in creating this book is to provide a useful resource for educators and researchers interested in helping students at all educational levels to develop statistical literacy, statistical reasoning, and statistical thinking" (p. 8). Thus, the audience for the book includes current and future researchers as well as teachers of statistics. Potential use in curriculum development and in the incorporation of educational technology expands the significance of the book, which could thus be a useful text for graduate courses in mathematics education.

The 17 chapters in the book are arranged in three parts. The five chapters in the first part introduce issues and theoretical models associated with the three key constructs. An introductory general chapter (Ben-Zvi & Garfield) is followed by one on statistical thinking (Pfannkuch & Wild), one on statistical literacy (Gal), and two chapters on aspects of statistical reasoning (delMas; Jones, Langrall, Mooney & Thornton). Although they are based on empirical studies, these chapters are strongly theoretical in orientation. The eight chapters in the second part focus more on empirical aspects of the teaching and learning of particular content involving the key constructs: data analysis (Ben-Zvi); distribution (Bakker & Gravemeijer); average as a stable feature of a noisy process (Konold & Pollatsek); variation (Reading & Shaughnessy); covariation (Moritz); normal distribution (Battaneo, Tauber, & Sánchez); samples (Watson); and sampling distributions (Chance, delMas, & Garfield). The four chapters in the final part directly address instructional, curricular, and research issues (Mickelson & Heaton; Makar & Confrey; Cobb & McClain; Garfield & Ben-Zvi). All the chapter authors are leading researchers in this developing field. Thus, a strong aspect of this book is that their work and latest thinking is collected in one volume, organized in a useful and logical structure, and presented in a high-quality format that justifies the price of the book. Echoing the comment of David Moore in the foreword, "It is not often that a book serves to synthesize an emerging field of study while at the same time meeting clear practical needs" (p. x). Moore suggests that the book will come to be seen as a classic.

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Reasoning and Thinking

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