APPLIED RASCH MEASUREMENT:
A BOOK OF EXEMPLARS

EDUCATION IN THE ASIA-PACIFIC REGION: ISSUES, CONCERNS AND PROSPECTS

Volume 4

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Applied Rasch Measurement: A Book of Exemplars

Papers in Honour of John P. Keeves

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SERIES SCOPE

The purpose of this Series is to meet the needs of those interested in an in-depth analysis of current developments in education and schooling in the vast and diverse Asia-Pacific Region. The Series will be invaluable for educational researchers, policy makers and practitioners, who want to better understand the major issues, concerns and prospects regarding educational developments in the Asia-Pacific region.

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Preface

While the primary purpose of the book is a celebration of John's contributions to the field of measurement, a second and related purpose is to provide a useful resource. We believe that the combination of the developmental history and theory of the method, the examples of its use in practice, some possible future directions, and software and data files will make this book a valuable resource for teachers and scholars of the Rasch method.

This book is a tribute to Professor John P Keeves for the advocacy of the Rasch model in Australia. Happy 80th birthday John!

There are good introductory texts on Item Response Theory, Objective Measurement and the Rasch model. However, for a beginning researcher keen on utilising the potentials of the Rasch model, theoretical discussions of test theory and associated indices do not meet their pragmatic needs. Furthermore, many researchers in measurement still have little or no knowledge of the features of the Rasch model and its use in a variety of situations and disciplines. This book attempts to describe the underlying axioms of test theory, and, in particular, the concepts of objective measurement and the Rasch model, and then link theory to practice. We have been introduced to the various models of test theory during our graduate days. It was time for us to share with those keen in the field of measurement in education, psychology and the social sciences the theoretical and practical aspects of objective measurement. Models, conceptions and applications are refined continually, and this book seeks to illustrate the dynamic evolution of test theory and also highlight the robustness of the Rasch model.

Part 1

The volume has an introductory section that explores the development of measurement theory. The first chapter on classical test theory traces the developments in test construction and raises issues associated with both terminologies and indices to ascertain the stability of tests and items. This chapter leads to a rationale for the use Objective Measurement and deals specifically with the Rasch Simple Logistic Model. Chapters by Geoff Masters and David Andrich highlight the fundamental principles of the Rasch model and also raise issues where misinterpretations may occur.

Part 2

This section of the book includes a series of chapters that present applications of the Rasch measurement model to a wide range of data sets. The intention in including these chapters is to present a diverse series of case studies that illustrate the breadth of application of the method.

Of particular interest will be contact details of the authors of articles in Parts 2A and 2B. Sample data sets and input files may be requested from these contributors so that students of the Rasch method can have access to both the raw materials for analyses and the results of those analyses as they appear in published form in their chapter.

Part 3

The final section of the volume includes reviews of recent extensions of the Rasch method which anticipate future developments of it. Contributions by Luo Guanzhong (unfolding model) and Mark Wilson (Multitrait Model) raise issues about the dynamic developments in the application and extensions of the Rasch model. Trevor Bond's conclusion in the final chapter raises possibilities for users of the principles of objective measurement, and its use in social sciences and education.

Appendix

This section introduces the software packages that are available for Rasch analysis. Useful resource locations and key contact details are made available for prospective users to undertake self-study and explorations of the Rasch model.

August 2004

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