

Applied Rasch Measurement A Book Of Exemplars Papers In Honour Of John P Keeves Education In The Asia Pacific Region Issues Concerns And Prospects

Item response theory (IRT) has moved beyond the confines of educational measurement into assessment domains such as personality, psychopathology, and patient-reported outcomes. Classic and emerging IRT methods and applications that are revolutionizing psychological measurement, particularly for health assessments used to demonstrate treatment effectiveness, are reviewed in this new volume. World renowned contributors present the latest research and methodologies about these models along with their applications and related challenges. Examples using real data, some from NIH-PROMIS, show how to apply these models in actual research situations. Chapters review fundamental issues of IRT, modern estimation methods, testing assumptions, evaluating fit, item banking, scoring in multidimensional models, and advanced IRT methods. New multidimensional models are provided along with suggestions for deciding among the family of IRT models available. Each chapter provides an introduction, describes state-of-the art research methods, demonstrates an application, and provides a summary. The book addresses the most critical IRT conceptual and statistical issues confronting researchers and advanced students in psychology, education, and medicine today. Although the chapters highlight health outcomes data the issues addressed are relevant to any content domain. The book addresses: IRT models applied to non-educational data especially patient reported outcomes Differences between cognitive and non-cognitive constructs and the challenges these bring to modeling. The application of multidimensional IRT models designed to capture typical performance data. Cutting-edge methods for deriving a single latent dimension from multidimensional data A new model designed for the measurement of constructs that are defined on one end of a continuum such as substance abuse Scoring individuals under different multidimensional IRT models and item banking for patient-reported health outcomes How to evaluate measurement invariance, diagnose problems with response categories, and assess growth and change. Part 1 reviews fundamental topics such as assumption testing, parameter estimation, and the assessment of model and person fit. New, emerging, and classic IRT models including modeling multidimensional data and the use of new IRT models in typical performance measurement contexts are examined in Part 2. Part 3 reviews the major applications of IRT models such as scoring, item banking for patient-reported health outcomes, evaluating measurement invariance, linking scales to a common metric, and measuring growth and change. The book concludes with a look at future IRT applications in health outcomes measurement. The book summarizes the latest advances and critiques foundational topics such a multidimensionality, assessment of fit, handling non-normality, as well as applied topics such as differential item functioning and multidimensional linking. Intended for researchers, advanced students, and practitioners in psychology, education, and medicine interested in applying IRT methods, this book also serves as a text in advanced graduate courses on IRT or measurement. Familiarity with factor analysis, latent variables, IRT, and basic measurement theory is assumed.

Highlighting the progress made by researchers in using Web-based surveys for data collection, this timely volume summarizes the experiences of leading behavioral and social scientists from Europe and the US who collected data using the Internet. Some chapters present theory, methodology, design, and implementation, while others focus on best practice examples and/or issues such as data quality and understanding paradata. A number of contributors applied innovative Web-based research methods to the LISS panel of CentERdata collected from over 5,000 Dutch households. Their findings are presented in the book. Some of the data is available on the book website. The book addresses practical issues such as data quality, how to reach difficult target groups, how to design a survey to maximize response, and ethical issues that need to be considered. Innovative applications such as the use of biomarkers and eye-tracking techniques are also explored. Part 1 provides an overview of Internet survey research including its methodologies, strengths, challenges, and best practices. Innovative ways to minimize sources of error are provided along with a review of mixed-mode designs, how to design a scientifically sound longitudinal panel and avoid sampling problems, and address ethical requirements in Web surveys. Part 2 focuses on advanced applications including the impact of visual design on the interpretability of survey questions, the impact survey usability has on respondents' answers, design features that increase interaction, and how Internet surveys can be effectively used to study sensitive issues. Part 3 addresses data quality, sample selection, measurement and non-response error, and new applications for collecting online data. The issue of underrepresentation of certain groups in Internet research and the measures most effective at reducing it are also addressed. The book concludes with a discussion of the importance of paradata and the Web data collection process in general, followed by chapters with innovative experiments using eye-tracking techniques and biomarker data. This practical book appeals to practitioners from market survey research institutes and researchers in disciplines such as psychology, education, sociology, political science, health studies, marketing, economics, and business who use the Internet for data collection, but is also an ideal supplement for graduate and/or upper level undergraduate courses on (Internet) research methods and/or data collection taught in these fields.

Written in an accessible style, this book facilitates a deep understanding of the Rasch model. Authors Bond and Fox review the crucial properties of the Rasch model and demonstrate its use with a wide range of examples including the measurement of educational achievement, human development, attitudes, and medical rehabilitation. A glossary and numerous illustrations further aid the reader's understanding. The authors demonstrate how to apply Rasch analysis and prepare readers to perform their own analyses and interpret the results. Updated throughout, highlights of the Second Edition include: a new CD that features an introductory version of the latest Winsteps program and the data files for the book's examples, preprogrammed to run using Winsteps; a new chapter on invariance that highlights the parallels between physical and human science measurement; a new appendix on analyzing data to help those new to Rasch analysis; more explanation of the key concepts and item characteristic curves; a new empirical example with data sets demonstrates the many facets of the Rasch model and other new examples; and an increased focus on issues related to unidimensionality, multidimensionality, and the Rasch factor analysis of residuals. Applying the Rasch Model is intended for researchers and practitioners in psychology, especially developmental psychologists, education, health care, medical rehabilitation, business, government, and those interested in measuring attitude, ability, and/or performance. The book is an excellent text for use in courses on advanced research methods, measurement, or quantitative analysis. Significant knowledge of statistics is not required.

Applied Power Analysis for the Behavioral Sciences is a practical "how-to" guide to conducting statistical power analyses for psychology and related fields. The book provides a guide to conducting analyses that is appropriate for researchers and students,

including those with limited quantitative backgrounds. With practical use in mind, the text provides detailed coverage of topics such as how to estimate expected effect sizes and power analyses for complex designs. The topical coverage of the text, an applied approach, in-depth coverage of popular statistical procedures, and a focus on conducting analyses using R make the text a unique contribution to the power literature. To facilitate application and usability, the text includes ready-to-use R code developed for the text. An accompanying R package called pwr2ppl (available at <https://github.com/chrisaberson/pwr2ppl>) provides tools for conducting power analyses across each topic covered in the text.

Invariant Measurement with Raters and Rating Scales

Rasch Models in Health

A Critical History of a Methodological Concept

A Course in Rasch Measurement Theory

Innovative Assessment of Collaboration

Applications of Rasch Measurement in Learning Environments Research

This book focuses on the use of the Rasch measurement model in validation studies and in analyzing the psychometric properties of a variety of test instruments, questionnaires, and scales in international contexts. It broadly examines the development and application of Rasch modeling, providing in-depth analyses of the properties of various scales used in the fields of education, and humanities and social sciences research. The book includes exemplary works on educational research and practices that highlight recent and innovative applications, as well as theoretical and practical aspects of Rasch modeling. Readers will find it helpful to understand the latest approaches to Rasch measurement in educational research, as well as practices for future studies and quantitative research. 'This book provides a diverse set of perspectives on Rasch models from scholars across the globe. The volume is both theoretical and applied. The first section of the book provides an overview of Rasch modeling and explains the theoretical and conceptual framework underlying the Rasch model. The remainder of the book highlights multiple applications of the Rasch model within educational assessment as well as several examples of how Rasch modeling can be used for validation studies. This volume showcases the wide variety of ways in which Rasch modeling can be applied to assessment data to provide insights into students' achievement and learning and to improve instruction.' Betsy McCoach, University of Connecticut, USA. 'A well-written collection of articles. Grouped by the theoretical and applied aspects of Rasch measurement, each chapter in this edited volume makes notable contributions to knowledge and practice. Written by leading scholars in the field, these chapters were written in a clear, succinct, and assertive manner, providing readers with up-to-date information, analyses, and debates. This book should be found in the core collection of emerging researchers and established scholars in educational measurement.' Timothy Teo, Murdoch University, Australia.

Recognised as the most influential publication in the field, ARM facilitates deep understanding of the Rasch model and its practical applications. The authors review the crucial properties of the model and demonstrate its use with examples across the human sciences. Readers will be able to understand and critically evaluate Rasch measurement research, perform their own Rasch analyses and interpret their results. The glossary and illustrations support that understanding, and the accessible approach means that it is ideal for readers without a mathematical background. Highlights of the new edition include: More learning tools to strengthen readers' understanding including chapter introductions, boldfaced key terms, chapter summaries, activities and suggested readings. Greater emphasis on the use of R packages; readers can download the R code from the Routledge website. Explores the distinction between numerical values, quantity and units, to understand the measurement and the role of the Rasch logit scale (Chapter 4). A new four-option data set from the IASQ (Instrumental Attitude towards Self-assessment Questionnaire) for the Rating Scale Model (RSM) analysis exemplar (Chapter 6). Clarifies the relationship between Rasch measurement, path analysis and SEM, with a host of new examples of Rasch measurement applied across health sciences, education and psychology (Chapter 10). Intended as a text for graduate courses in measurement, item response theory, (advanced) research methods or quantitative analysis taught in psychology, education, human development, business, and other social and health sciences. Professionals in these areas will also appreciate the book's accessible introduction.

This unique text provides a step-by-step beginner's guide to applying the Rasch model in R, a probabilistic model used by researchers across the social sciences to measure unobservable ("latent") variables. Each chapter is devoted to one popular Rasch model, ranging from the least to the most complex. Through a freely available and user-friendly package, BlueSky Statistics, Lamprinou offers a range of options for presenting results, critically examines the strengths and weaknesses of applying the Rasch model in each instance, and suggests more effective methodologies where applicable. With a focus on simple software code which does not assume extensive mathematical knowledge, the reader is initially introduced to the so-called simple Rasch Model to construct a "political activism" variable out of a group of dichotomously scored questions. In subsequent chapters, the book covers everything from the Rating Scale to the Many-facets Rasch model. The final chapter even showcases a complete mock manuscript, demonstrating how a Rasch-based paper on the identification of online hate speech should look like. Combining theoretical rigor and real-world examples with empirical datasets from published papers, this book is essential reading for students and researchers alike who aspire to use Rasch models in their research.

Grounded in current knowledge and professional practice, this book provides up-to-date coverage of psychometric theory, methods, and interpretation of results. Essential topics include measurement and statistical concepts, scaling models, test design and development, reliability, validity, factor analysis, item response theory, and generalizability theory. Also addressed are norming and test equating, topics not typically covered in traditional psychometrics texts. Examples drawn from a dataset on intelligence testing are used throughout the book, elucidating the assumptions underlying particular methods and providing SPSS (or alternative) syntax for conducting analyses. The companion website presents datasets for all examples as well as PowerPoint slides of figures and key concepts. Pedagogical features include equation boxes with explanations of statistical notation, and end-of-chapter glossaries. The Appendix offers extensions of the topical chapters with example source code from SAS, SPSS, IRTPRO, BILOG-MG, PARSCALE, TESTFACT, and DIMTEST.

The Routledge Handbook of Language Testing

A Book of Exemplars : Papers in Honour of John P. Keeves

Rasch Measurement Theory Analysis in R

Measuring in the Educational, Social and Health Sciences

Papers in Honour of John P. Keeves

Item Response Theory

Measurement models developed by Georg Rasch are renowned in the social sciences. In this introduction, the focus is on the simple logistic model, which is one of the most elementary and commonly used. The author explains the general principles behind the models, and demonstrates their procedures for measurement. Comparisons are made with other more widely-used models. Throughout the text, an example from a personality inventory is used to provide continuity as the

statistical arguments are presented and procedures explained.

Item Response Theory clearly describes the most recently developed IRT models and furnishes detailed explanations of algorithms that can be used to estimate the item or ability parameters under various IRT models. Extensively revised and expanded, this edition offers three new chapters discussing parameter estimation with multiple groups, parameter estimation for a test with mixed item types, and Markov chain Monte Carlo methods. It includes discussions on issues related to statistical theory, numerical methods, and the mechanics of computer programs for parameter estimation, which help to build a clear understanding of the computational demands and challenges of IRT estimation procedures.

Quantitative Data Analysis for Language Assessment Volume I: Fundamental Techniques is a resource book that presents the most fundamental techniques of quantitative data analysis in the field of language assessment. Each chapter provides an accessible explanation of the selected technique, a review of language assessment studies that have used the technique, and finally, an example of an authentic study that uses the technique. Readers also get a taste of how to apply each technique through the help of supplementary online resources that include sample data sets and guided instructions. Language assessment students, test designers, and researchers should find this a unique reference as it consolidates theory and application of quantitative data analysis in language assessment.

Winner of the SAGE/ILTA Book Award 2016 The Routledge Handbook of Language Testing will provide a comprehensive account of the area of language assessment and testing. Written by leading specialists from around the world, this volume brings together approximately 35 authoritative articles (around 8000 words each). The proposed outline for the Handbook (below) is divided into ten sections. The section titles reflect the contents of their Language Testing and Assessment -textbook in our RAL series and sketch a useful overview of the discipline. Each chapter has been carefully selected to relate to key issues raised in the respective topic, providing additional historical background, critical discussion, reviews of key research methods, and an assessment of what the future might hold.

Ordinal Measurement in the Behavioral Sciences

Rasch Models for Measurement

Rasch Models for Rater-Mediated Assessments

Quantitative Data Analysis for Language Assessment Volume I

Theory into Practice

Psychometric Methods

Measurement is a fundamental concept that underpins almost every aspect of the modern world. It is central to the sciences, social sciences, medicine, and economics, but it affects everyday life. We measure everything - from the distance of far-off galaxies to the temperature of the air, levels of risk, political majorities, taxes, blood pressure, IQ, and weight. The history of measurement goes back to the ancient world, and its story has been one of gradual standardization. Today there are different types of measurement, levels of accuracy, and systems of units, applied in different contexts. Measurement involves notions of variability, accuracy, reliability, and error, and challenges such as the measurement of extreme values. In this Very Short Introduction, David Hand explains the common mathematical framework underlying all measurement, the main approaches to measurement, and the challenges involved. Following a brief historical account of measurement, he discusses measurement as used in the physical sciences and engineering, the life sciences and medicine, the social and behavioural sciences, economics, business, and public policy. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

This book traces how such a seemingly immutable idea as measurement proved so debatable when it collided with the subject matter of psychology. This book addresses philosophical and social influences (such as scientism, practicalism, and Pythagoreanism) reshaping the concept of measurement and identifies a fundamental problem at the core of this reshaping: the issue of whether psychological attributes really are quantitative. The author argues that the idea of measurement now endorsed within psychology actually subverts attempts to establish a genuinely quantitative science, and he urges a new direction. This volume relates views on measurement by thinkers such as Hölder, Russell, Campbell, and Nagel to earlier views, like those of Euclid and Oresme. Within the history of psychology, it considers contributions by Fechner, Cattell, Thorndike, Stevens and Suppes, among others. It also contains a nontechnical exposition of conjoint measurement theory and recent foundational work by leading measurement theorist R. Duncan Luce. This thought-provoking book will be particularly valued by researchers in the fields of psychological history and philosophy of science.

Constructing Measures introduces a way to understand the advantages and disadvantages of measurement instruments, how to use such instruments, and how to apply these methods to develop new instruments or adapt old ones. The book is organized around the steps taken while constructing an instrument. It opens with a summary of the constructive steps involved. Each step is then expanded on in the next four chapters. These chapters develop the "building blocks" that make up an instrument--the construct map, the design plan for the items, the outcome space, and the statistical measurement model. The next three chapters focus on quality control. They rely heavily on the calibrated construct map and review how to check if scores are operating consistently and how to evaluate the reliability and validity evidence. The book introduces a variety of item formats, including multiple-choice, open-ended, and performance items; projects; portfolios; Likert and Guttman items; behavioral observations; and interview protocols. Each chapter includes an overview of the key concepts, related resources for further investigation and exercises and activities. Some chapters feature appendices that describe parts of the

instrument development process in more detail, numerical manipulations used in the text, and/or data results. A variety of examples from the behavioral and social sciences and education including achievement and performance testing; attitude measures; health measures, and general sociological scales, demonstrate the application of the material. An accompanying downloadable resources feature control files, output, and a data set to allow readers to compute the text's exercises and create new analyses and case archives based on the book's examples so the reader can work through the entire development of an instrument. Constructing Measures is an ideal text or supplement in courses on item, test, or instrument development, measurement, item response theory, or Rasch analysis taught in a variety of departments including education and psychology. The book also appeals to those who develop instruments, including industrial/organizational, educational, and school psychologists, health outcomes researchers, program evaluators, and sociological measurers. Knowledge of basic descriptive statistics and elementary regression is recommended.

This introductory text describes the principles of invariant measurement, how invariant measurement can be achieved with Rasch models, and how to use invariant measurement to solve measurement problems in the social, behavioral, and health sciences. Rasch models are used throughout but a comparison of Rasch models to other item response theory (IRT) models is also provided. Written with students in mind, the manuscript was class tested to help maximize accessibility. Chapters open with an introduction and close with a summary and discussion. Numerous examples and exercises demonstrate the main issues addressed in each chapter. Key terms are defined when first introduced and in an end-of-text glossary. All of the book's analyses were conducted with the Facets program. The data sets used in the book, sample syntax files for running the Facets program, Excel files for creating item and person response functions, links to related websites, and other material are available at www.GeorgeEngelhard.com. Highlights include: A strong philosophical and methodological approach to measurement in the human sciences Demonstrations of how measurement problems can be addressed using invariant measurement Practical illustrations of how to create and evaluate scales using invariant measurement A history of measurement based on test-score and scaling traditions Previously unpublished work in analyzing rating data, the detection and measurement of rater errors, and the evaluation of rater accuracy A review of estimation methods, model-data fit, indices used to evaluate the quality of rater-mediated assessments, rater error and bias, and rater accuracy. Intended as a supplementary text for graduate or advanced undergraduate courses on measurement or test theory, item response theory, scaling theory, psychometrics, advanced measurement techniques, research methods, or evaluation research taught in education, psychology, and the social and health sciences, the book also appeals to practitioners and researchers in these fields who develop or use scales and instruments. Only a basic mathematical level is required including a basic course in statistic.

Constructing Measures

Introduction to Rasch Measurement

Handbook of Item Response Theory Modeling

Applied Rasch Measurement

Measurement Models for Psychological Attributes

Applied Rasch Measurement: A Book of Exemplars

Test Development and Validation by Gary Skaggs frameworks for test development and validation, and guidance for developing tests in straightforward language in one core text. Covering the changes in testing, technical development of tests and determining validity of tests, this book offers clear explanations within a real-world context.

The family of statistical models known as Rasch models started with a simple model for responses to questions in educational tests presented together with a number of related models that the Danish mathematician Georg Rasch referred to as models for measurement. Since the beginning of the 1950s the use of Rasch models has grown and has spread from education to the measurement of health status. This book contains a comprehensive overview of the statistical theory of Rasch models. Part 1 contains the probabilistic definition of Rasch models, Part 2 describes the estimation of item and person parameters, Part 3 concerns the assessment of the data-model fit of Rasch models, Part 4 contains applications of Rasch models, Part 5 discusses how to develop health-related instruments for Rasch models, and Part 6 describes how to perform Rasch analysis and document results.

Winner of the University of San Diego Outstanding Leadership Book Award 2012! Shortlisted for the British Psychological Society Book Award 2011! Shortlisted for the CMI (Chartered Management Institute) Management Book of the Year Award 2011–2012! According to John Adair, the most important word in the leader's vocabulary is "we" and the least important word is "I". But if this is true, it raises one important question: why do psychological analyses of leadership always focus on the leader as an individual – as the great "I"? One answer is that theorists and practitioners have never properly understood the psychology of "we-ness". This book fills this gap by presenting a new psychology of leadership that is the result of two decades of research inspired by social identity and self-categorization theories. The book argues that to succeed, leaders need to create, champion, and embed a group identity in order to cultivate an understanding of 'us' of which they themselves are representative. It also shows how, by doing this, they can make a material difference to the groups,

organizations, and societies that they lead. Written in an accessible and engaging style, the book examines a range of central theoretical and practical issues, including the nature of group identity, the basis of authority and legitimacy, the dynamics of justice and fairness, the determinants of followership and charisma, and the practice and politics of leadership. The book will appeal to academics, practitioners and students in social and organizational psychology, sociology, political science and anyone interested in leadership, influence and power.

Cited over 1900 times, this classic text facilitates a deep understanding of the Rasch model. The authors review the crucial properties of the model and demonstrate its use with a variety of examples from education, psychology, and health. A glossary and numerous illustrations aid the reader's understanding. Readers learn how to apply Rasch analysis so they can perform their own analyses and interpret the results. The authors present an accessible overview that does not require a mathematical background. Highlights of the new edition include: -More learning tools to strengthen readers' understanding including chapter introductions, boldfaced key terms, chapter summaries, activities, and suggested readings. -Divided chapters (4, 6, 7 & 8) into basic and extended understanding sections so readers can select the level most appropriate for their needs and to provide more in-depth investigations of key topics. -A website at www.routledge.com/9780415833424 that features free Rasch software, data sets, an Invariance worksheet, detailed instructions for key analyses, and links to related sources. -Greater emphasis on the role of Rasch measurement as a priori in the construction of scales and its use post hoc to reveal the extent to which interval scale measurement is instantiated in existing data sets. -Emphasizes the importance of interval level measurement data and demonstrates how Rasch measurement is used to examine measurement invariance. -Insights from other Rasch scholars via innovative applications (Ch. 9). -Extended discussion of invariance now reviews DIF, DPF, and anchoring (ch. 5). -Revised Rating Scale Model material now based on the analysis of the CEAQ (ch.6). -Clarifies the relationships between Rasch measurement, True Score Theory, and Item Response Theory by reviewing their commonalities and differences (Ch.13). -Provides more detail on how to conduct a Rasch analysis so readers can use the techniques on their own (Appendix B). Intended as a text for graduate courses in measurement, item response theory, (advanced) research methods or quantitative analysis taught in psychology, education, human development, business, and other social and health sciences, professionals in these areas also appreciate the book's accessible introduction.

SAGE Publications

Using Rasch Models in the Social, Behavioral, and Health Sciences

Social and Behavioral Research and the Internet

Fundamental Measurement in the Human Sciences

An Item Response Modeling Approach

Advances in Rasch Analyses in the Human Sciences

This edited volume provides a platform for experts from various fields to introduce and discuss their different perspectives on the topic of teamwork and collaborative problem solving. It brings together researchers in organizational teaming, educational collaboration, tutoring, simulation, and gaming as well as those involved in statistical and psychometric process modelling. This book seeks to channel this expertise towards advances in the measurement and assessment of cognitive and non-cognitive skills of individuals and teams.

"Recognised as the most influential publication in the field, ARM facilitates deep understanding of the Rasch model and its practical applications. The authors review the crucial properties of the model and demonstrate its use with examples across the human sciences. Readers will be able to understand and critically evaluate Rasch measurement research, perform their own Rasch analyses and interpret their results. The glossary and illustrations support that understanding, and the accessible approach means that it is ideal for readers without a mathematical background. Highlights of the new edition include: -More learning tools to strengthen readers' understanding including chapter introductions, boldfaced key terms, chapter summaries, activities, and suggested readings. -Greater emphasis on the use of R packages; readers can download the R code from the Routledge website. -Explores the distinction between numerical values, quantity, and units, to understand the measurement and the role of the Rasch logit scale (chpt 4). -A new four-option data set from the IASQ (Instrumental Attitude towards Self-assessment Questionnaire) for the Rating Scale Model (RSM) analysis exemplar (chpt 6). -Clarifies the relationship between Rasch measurement, path analysis and SEM, with a host of new examples of Rasch measurement applied across health sciences, education and psychology (chpt 10). Intended as a text for graduate courses in measurement, item response theory, (advanced) research methods or quantitative analysis taught in psychology, education, human development, business, and other social and health sciences. Professionals in these areas will also appreciate the book's accessible introduction"--

This book is a valuable read for a diverse group of researchers and practitioners who analyze assessment data and construct test instruments. It focuses on the use of classical test theory (CTT) and item response theory (IRT), which are often required in the fields of psychology (e.g. for measuring psychological traits), health (e.g. for measuring the severity of disorders), and education (e.g. for measuring student performance), and makes these analytical tools accessible to a broader audience. Having taught assessment subjects to students from diverse backgrounds for a number of years, the three authors have a wealth of experience in presenting educational measurement topics, in-depth concepts and applications in an accessible format. As such, the book addresses the needs of readers who use CTT and IRT in their work but do not necessarily have an extensive mathematical background. The book also sheds light on common misconceptions in applying measurement models, and presents an integrated approach to different measurement methods, such as contrasting CTT with IRT and multidimensional IRT models with unidimensional IRT models. Wherever possible, comparisons between models are explicitly made. In addition, the book discusses concepts for test equating and differential item functioning, as well as Bayesian IRT models and plausible values using simple examples. This book can serve as a textbook for introductory courses on educational measurement, as supplementary reading for advanced courses, or as a valuable reference guide for researchers interested in analyzing student assessment data. This volume follows the publication of Rasch Analysis in the Human Sciences. This new book presents additional topics not discussed in the previous volume. It examines key topics such as partial credit analysis of data, common person linking,

computing equating constants, investigating discrimination, evaluating dimensionality, how to better utilize Wright Maps, how to design tests and surveys using Rasch theory, and many more. The book includes activities which can be used to practice the theme of each chapter and to test the reader's understanding of Rasch techniques. Beginning and ending with a conversation between two students, each chapter provides clear step-by-step instructions as to how to conduct an analysis using the chapter theme. The chapters emphasize applications for the beginner learning Rasch and provide guidance for composing a write-up of an analysis for a presentation, paper, thesis or report. This book explores in detail many important yet often rarely discussed topics in Rasch. With its easy-to-read language and engaging format it reaches a wide audience of scientists, clinicians, students, researchers and psychometricians, providing a valuable toolkit for practical users of Rasch analysis. – Dr. Eva Fenwick, Clinical Research Fellow, Singapore Eye Research Institute (SERI) Assistant Professor, Duke-NUS Medical School, Singapore It is an easy to read book and provides immediate guidance for those wishing to conduct a Rasch analysis. The "conversations" between students in each chapter provides a welcome introduction to each topic. – Prof. Maik Walpuski, University Duisburg-Essen, Germany The lessons learned in their first book are extended by providing insightful demonstrations of some of the more complex concepts and techniques used in applying Rasch models. – Dr. Michael R. Peabody, National Association of Boards of Pharmacy, Illinois, USA I am amazed with the ability of these authors to communicate complicated knowledge, and the ability to make this highly complicated knowledge accessible to new learners guiding every step of the way. Through this book we get important knowledge about techniques and the different areas of use for Rasch methods in the human sciences This is truly an important book for students and researchers. – Prof. Charlotte Ringsmose, Aalborg University, Denmark

Rasch Analysis in the Human Sciences

Measurement in Psychology

Advances in Applied Methods and Research Strategies

Parameter Estimation Techniques, Second Edition

Applied Power Analysis for the Behavioral Sciences

Educational Measurement for Applied Researchers

This book applies Rasch measurement theory to the fields of education, psychology, sociology, marketing and health outcomes in order to measure various social constructs. The chief focus is on first principles of both the theory and its applications. Because software is readily available to perform analyses of real data, numerous small examples are provided in the book. The software used in these examples, and which is helpful throughout the text, is RUMM2030 (Rasch unidimensional models for measurement). The book's main goals are to equip researchers with the confidence they need in order to be in control of the analysis and interpretation of data, and to make professional rather than primarily statistical decisions mechanically. Because statistical principles are necessarily involved, reviews of the requisite statistics are provided in the Appendix. The content is based on courses that have been taught both online and in intensive form for over two decades. Although first principles are covered, much of the book is based on research conducted by the two authors and their colleagues.

Despite the overwhelming use of tests and questionnaires, the psychometric models for constructing these instruments are often poorly understood, leading to suboptimal measurement. Measurement Models for Psychological Attributes is a comprehensive and accessible monograph of the common and the less than common measurement models for the social, behavioral, and health sciences. The monograph explains the adequate use of measurement models for test construction, points out their merits and drawbacks, and critically discusses topics that have and continue to raise controversy. Because introductory texts on statistics and psychometrics are sufficient to understand its content, this monograph may be used in advanced courses on applied psychometrics, and is attractive to both researchers and graduate students in education, sociology, political science, medicine and marketing, policy research, and opinion research. The monograph provides an in-depth discussion of classical test theory and factor models in Chapter 2; nonparametric and parametric item response theory in Chapter 3 and Chapter 4, respectively; latent class models and cognitive diagnosis models in Chapter 5; and discusses pairwise comparison models, proximity models, response time models, and network psychometrics in Chapter 6. The chapters start with the theory and methods of the measurement model and conclude with a real-data example illustrating the measurement model.

Rasch Analysis in the Human Sciences helps individuals, both students and researchers, master the key concepts and resources needed to apply Rasch techniques for analyzing data from assessments to measure variables such as abilities, attitudes, and personality traits. Upon completion of the text, readers will be able to confidently evaluate the strengths and weakness of existing instrumentation, compute linear person and item measures, interpret Wright Maps, utilize Rasch software, and understand what it means to measure in the Human Sciences. Each chapter presents a key concept using a mix of theory and application of user-friendly Rasch software. Chapters also include a beginning and ending dialogue between two typical researchers learning Rasch, "Formative Assessment Check Points," sample data files, an extensive list of application activities with answers, a one paragraph sample research article text integrating the chapter topic, quick-tips, and suggestions for further reading. Rasch Analysis in the Human Sciences will be an essential resource for anyone wishing to begin, or expand, their learning of Rasch measurement techniques, be it in the Health Sciences, Market Research, Education, or Psychology.

jMetrik is a computer program for implementing classical and modern psychometric methods. It is designed to facilitate work in a professional environment and to make advanced psychometric procedures accessible to every measurement practitioner. Applied Measurement with jMetrik reviews psychometric theory and describes how to use jMetrik to conduct a comprehensive psychometric analysis. Each chapter focuses on a topic in measurement, describes the steps for using jMetrik, and provides one or more examples of conducting an analysis on the topic. Recommendations and guidance for practice is provided throughout the book.

Handbook of Polytomous Item Response Theory Models

Test Development and Validation

Rasch Measurement

Fundamental Measurement in the Human Sciences, Third Edition

Invariant Measurement

This accessible book has established itself as the go-to resource on confirmatory factor analysis (CFA) for its emphasis on practical and conceptual aspects rather than mathematics or formulas. Detailed, worked-through examples drawn from psychology, management, and sociology studies illustrate the procedures, pitfalls, and extensions of CFA methodology. The text shows how to formulate, program, and interpret CFA models using popular latent variable software packages (LISREL, Mplus, EQS, SAS/CALIS); understand the similarities ... Measurement models developed by Georg Rasch are renowned in social science disciplines such as education, psychology and sociology. In this introduction to the models, the focus is on the simple logistic model, which is one of the most elementary and commonly used. First Published in 2010. Routledge is an imprint of Taylor & Francis, an informa company.

Major advances in creating linear measures in education and the social sciences, particularly in regard to Rasch measurement, have occurred in the past 15 years, along with major advances in computer power. These have been combined so that the Rasch Unidimensional Measurement Model (RUMM) and the WINSTEPS computer programs now do statistical calculations and produce graphical outputs with very fast switching times. These programs help researchers produce unidimensional, linear scales from which valid inferences can be made by

calculating person measures and item difficulties on the same linear scale, with supporting evidence. These computer programs are now available to all Learning Environment researchers. This book includes 13 Learning Environment research papers using Rasch measurement applied at the forefront of education with an international flavour. The contents of the papers relate to: (1) high stakes numeracy testing in Western Australia; (2) early English literacy in New South Wales; (3) the Indonesian Scholastic Aptitude Test; (4) validity in Learning Environment investigations; (5) factors influencing the take-up of Physics in Singapore; (6) state-wide authentic assessment for Years 11-12; (7) talented and gifted student perceptions of the learning environment; (8) disorganisation in the classroom; (9) psychological services in learning environments; (10) English teaching assistant roles in Hong Kong; (11) learning Japanese as a second language; (12) engagement in classroom learning; and (13) early cognitive development in children. This book would be of interest to all educators and educational administrators, to Learning Environment researchers and PhD students, and should be available in all university libraries where the universities have education schools or faculties. –Russell Waugh-

Fundamental Techniques

Theory, Models and Applications

Classical Test Theory, Factor Analysis, Item Response Theory, and Latent Class Models

Confirmatory Factor Analysis for Applied Research, Second Edition

Applications to Typical Performance Assessment

The New Psychology of Leadership

This book provides an alternative method for measuring individual differences in psychological, educational, and other behavioral sciences studies. It is based on the assumptions of ordinal statistics as explained in Norman Cliff's 1996 Ordinal Methods for Behavioral Data Analysis. It provides the necessary background on ordinal measurement to permit its use to assess psychological and psychophysical tests and scales and interpret the data obtained. The authors believe that some of the behavioral measurement models used today do not fit the data or are inherently self-contradictory. Applications of these models can therefore lead to unwarranted inferences regarding the status of the derived variables. These methods can also be difficult to apply, particularly in small-sample contexts without making additional, unrealistic assumptions. Ordinal methods more closely reflect the original data, are simple to apply, and can be used in samples of any size. The book's approach is in essence a return to simple empiricism in psychological measurement. Ordinal Measurement in the Behavioral Sciences provides: *methods for analyzing test responses; *extensive discussions of ordinal approaches to analyzing data that are judgments of stimuli; *methods for treating psychological data in ways consistent with its ordinal nature so as to stimulate new developments in this area; and *ordinal test theory and the unfolding methods that are applicable to cross-cultural studies. Advanced students, researchers, and practitioners concerned with psychological measurement should find this book relevant. Measurement professionals will find it provides useful and simple methods that stimulate thought about measurement's real issues.

Rasch Measurement Theory Analysis in R provides researchers and practitioners with a step-by-step guide for conducting Rasch measurement theory analyses using R. It includes theoretical introductions to major Rasch measurement principles and techniques, demonstrations of analyses using several R packages that contain Rasch measurement functions, and sample interpretations of results. Features: Accessible to users with relatively little experience with R programming Reproducible data analysis examples that can be modified to accommodate users' own data Accompanying e-book website with links to additional resources and R code updates as needed Features dichotomous and polytomous (rating scale) Rasch models that can be applied to data from a wide range of disciplines This book is designed for graduate students, researchers, and practitioners across the social, health, and behavioral sciences who have a basic familiarity with Rasch measurement theory and with R. Readers will learn how to use existing R packages to conduct a variety of analyses related to Rasch measurement theory, including evaluating data for adherence to measurement requirements, applying the dichotomous, Rating Scale, Partial Credit, and Many-Facet Rasch models, examining data for evidence of differential item functioning, and considering potential interpretations of results from such analyses.

The purpose of this book is to present methods for developing, evaluating and maintaining rater-mediated assessment systems. Rater-mediated assessments involve ratings that are assigned by raters to persons responding to constructed-response items (e.g., written essays and teacher portfolios) and other types of performance assessments. This book addresses the following topics: (1) introduction to the principles of invariant measurement, (2) application of the principles of invariant measurement to rater-mediated assessments, (3) description of the lens model for rater judgments, (4) integration of principles of invariant measurement with the lens model of cognitive processes of raters, (5) illustration of substantive and psychometric issues related to rater-mediated assessments in terms of validity, reliability, and fairness, and (6) discussion of theoretical and practical issues related to rater-mediated assessment systems. Invariant measurement is fast becoming the dominant paradigm for assessment systems around the world, and this book provides an invaluable resource for graduate students, measurement practitioners, substantive theorists in the human sciences, and other individuals interested in invariant measurement when judgments are obtained with rating scales.

Applied Rasch Measurement: A Book of Exemplars Papers in Honour of John P. Keeves Springer Science & Business Media

Identity, Influence and Power

Measurement: A Very Short Introduction

FAIRNESS, JUSTICE & LANGUAGE ASSESSMENT

Applying the Rasch Model

2nd Edition

Fundamental Measurement in the Human Sciences, Second Edition

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! xii 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.

This book has two goals, each related to the validity of language assessment. The first goal is to explore the difference between fairness and justice in language assessment. The authors distinguish internal and external dimensions of the equitable and just treatment of individuals taking language tests which are used as gatekeeping devices to determine access to education and employment, immigrant status, citizenship, and other rights. The second goal is to show how the extent of test fairness can be demonstrated and improved using the tools of psychometrics, in particular the models collectively known as Rasch measurement. "This book will have an enormous impact on the field of language assessment. Using Rasch analysis models to explore and identify sources of unfairness, the authors make a compelling case for fairness in the design and implementation of language assessment instruments and for justice in the interpretation and use of test results. A real strength of the book is that it guides readers through analytical techniques in an accessible way." Dan Douglas, Professor Emeritus, Applied Linguistics Program, Iowa State University.

Theory Into Practice

Applied Measurement with jMetrik

Applying the Rasch Model in Social Sciences Using R

Applications in Quantitative Educational Research