Test Equating Methods And Practices Springer Series In Statistics

Test Equating, Scaling, and Linking *Applying Test Equating Methods* **Test Equating** **The Kernel Method of Test Equating** **The Kernel Method of Test Equating** The Wiley Handbook of Psychometric Testing **The History of Educational Measurement** **Theoretical and Practical Advances in Computer-based Educational Measurement** **Fundamentals of Item Response Theory** *Test Equating, Scaling, and Linking* *Measurement Theory and Applications for the Social Sciences* **Multidimensional Item Response Theory** **Test Equating** **Linking and Aligning Scores and Scales** *Statistical Models for Test Equating, Scaling, and Linking* **Advancing Human Assessment** *Scales, Norms, and Equivalent Scores* **Psychometric Methods** **Educational Measurement for Applied Researchers** **Modern Psychometrics with R** **The Effects of Content Homogeneity and Equating Method on the Accuracy of Common-item Test Equating** **Quantitative Psychology** Quantitative Psychology *Physical Activity Assessments for Health-related Research* **Testlet Response Theory and Its Applications** *Test Theory* **Handbook of Educational Measurement and Psychometrics Using R** **Iterative Methods for Sparse Linear Systems** **Foundations of Data Science** **Measurement Theory and Applications for the Social Sciences** Test Scoring Handbook of Item Response Theory **A Quadratic Curve Equating Method to Equate the First Three Moments in Equipercentile Equating** **The Theory and Practice of Item Response Theory** **Adapting Tests in Linguistic and Cultural Situations** *A Comparison of Kernel Equating and Item Response Theory True Score Equating* **Discrete Choice Methods with Simulation** *Constructing Measures* **Quantitative Data Analysis for Language Assessment Volume I** **Principles and Practice of Structural Equation Modeling, Fourth Edition**

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Adapting Tests in Linguistic and Cultural Situations Nov 29 2019 This book provides a practical but scientifically grounded step-by-step approach to the adaptation of tests in linguistic and cultural contexts.

Quantitative Data Analysis for Language Assessment Volume I Jul 26 2019 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.

Principles and Practice of Structural Equation Modeling, Fourth Edition Jun 24 2019 Emphasizing concepts and rationale over mathematical minutiae, this is the most widely used, complete, and accessible structural equation modeling (SEM) text. Continuing the tradition of using real data examples from a variety of disciplines, the significantly revised fourth edition incorporates recent developments such as Pearl's graphing theory and the structural causal model (SCM), measurement invariance, and more. Readers gain a comprehensive understanding of all phases of SEM, from data collection and screening to the interpretation and reporting of the results. Learning is enhanced by exercises with answers, rules to remember, and topic boxes. The companion website supplies data, syntax, and output for the book's examples--now including files for Amos, EQS, LISREL, Mplus, Stata, and R (lavaan). New to This Edition *Extensively revised to cover important new topics: Pearl's graphing theory and the SCM, causal inference frameworks, conditional process modeling, path models for longitudinal data, item response theory, and more. *Chapters on best practices in all stages of SEM, measurement invariance in confirmatory factor analysis, and significance testing issues and bootstrapping. *Expanded coverage of psychometrics. *Additional computer tools: online files for all detailed examples, previously provided in EQS, LISREL, and Mplus, are now also given in Amos, Stata, and R (lavaan). *Reorganized to cover the specification, identification, and analysis of observed variable models separately from latent variable models. Pedagogical Features *Exercises with answers, plus end-of-chapter annotated lists of further reading. *Real examples of troublesome data, demonstrating how to handle typical problems in analyses. *Topic boxes on specialized issues, such as causes of nonpositive definite correlations. *Boxed rules to remember. *Website promoting a learn-by-doing approach, including syntax and data files for six widely used SEM computer tools.

Testlet Response Theory and Its Applications Oct 09 2020 The measurement models employed to score tests have been evolving over the past century from those that focus on the entire test (true score theory) to models that focus on individual test items (item response theory) to models that use small groups of items (testlets) as the fungible unit from which tests are constructed and scored (testlet response theory, or TRT). In this book, the inventors of TRT trace the history of this evolution and explain the character of modern TRT. Written for researchers and professionals in statistics, psychometrics, and educational psychology, the first part offers an accessible introduction to TRT and its applications. The second part presents a comprehensive, self-contained discussion of the model couched within a fully Bayesian framework. Its parameters are estimated using Markov chain Monte Carlo procedures, and the resulting posterior distributions of the parameter estimates yield insights into score stability that were previously unsuspected.

Test Equating Aug 31 2022 Many researchers in the psychology and statistical communities have paid increasing attention to test equating as issues of using multiple test forms have arisen and in response to criticisms of traditional testing techniques. This text provides a practically-oriented introduction to test equating, covering discussions of the most frequently used equating methodologies and many of the practical issues involved. The main themes covered bu the book are: the purposes and assumptions of equating; classical equating methods; item response theory equating methods; standard errors of equating; and practical issues in equating.

Quantitative Psychology Dec 11 2020 This proceedings volume highlights the latest research and developments in psychometrics and statistics. It represents selected and peer reviewed presentations given at the 84th Annual International Meeting of the Psychometric Society (IMPS), organized by Pontificia Universidad Católica de Chile and held in Santiago, Chile during July 15th to 19th, 2019. The IMPS is one of the largest international

meetings on quantitative measurement in education, psychology and the social sciences. It draws approximately 500 participants from around the world, featuring paper and poster presentations, symposiums, workshops, keynotes, and invited presentations. Leading experts and promising young researchers have written the included chapters. The chapters address a large variety of topics including but not limited to item response theory, multistage adaptive testing, and cognitive diagnostic models. This volume is the 8th in a series of recent volumes to cover research presented at the IMPS.

Test Equating Oct 21 2021 In recent years, many researchers in the psychology and statistical communities have paid increasing attention to test equating as issues of using multiple test forms have arisen and in response to criticisms of traditional testing techniques. This book provides a practically oriented introduction to test equating which both discusses the most frequently used equating methodologies and covers many of the practical issues involved. The main themes are: - the purpose of equating - distinguishing between equating and related methodologies - the importance of test equating to test development and quality control - the differences between equating properties, equating designs, and equating methods - equating error, and the underlying statistical assumptions for equating. The authors are acknowledged experts in the field, and the book is based on numerous courses and seminars they have presented. As a result, educators, psychometricians, professionals in measurement, statisticians, and students coming to the subject for the first time as part of their graduate study will find this an invaluable text and reference.

Handbook of Educational Measurement and Psychometrics Using R Aug 07 2020 Currently there are many introductory textbooks on educational measurement and psychometrics as well as R. However, there is no single book that covers important topics in measurement and psychometrics as well as their applications in R. The Handbook of Educational Measurement and Psychometrics Using R covers a variety of topics, including classical test theory; generalizability theory; the factor analytic approach in measurement; unidimensional, multidimensional, and explanatory item response modeling; test equating; visualizing measurement models; measurement invariance; and differential item functioning. This handbook is intended for undergraduate and graduate students, researchers, and practitioners as a complementary book to a theory-based introductory or advanced textbook in measurement. Practitioners and researchers who are familiar with the measurement models but need to refresh their memory and learn how to apply the measurement models in R, would find this handbook quite fulfilling. Students taking a course on measurement and psychometrics will find this handbook helpful in applying the methods they are learning in class. In addition, instructors teaching educational measurement and psychometrics will find our handbook as a useful supplement for their course.

Constructing Measures Aug 26 2019 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.

Linking and Aligning Scores and Scales Sep 19 2021 In this book, experts in statistics and psychometrics describe classes of linkages, the history of score linkings, data collection designs, and methods used to achieve sound score linkages. They describe and critically discuss applications to a variety of domains. They define what linking is, to distinguish among the varieties of linking and to describe different procedure for linking. Furthermore, they convey the complexity and diversity of linking by covering different areas of linking and providing diverse perspectives.

A Quadratic Curve Equating Method to Equate the First Three Moments in Equipercentile Equating Jan 30 2020

The Theory and Practice of Item Response Theory Dec 31 2019 Item response theory (IRT) is a latent variable modeling approach used to minimize bias and optimize the measurement power of educational and psychological tests and other psychometric applications. Designed for researchers, psychometric professionals, and advanced students, this book clearly presents both the "how-to" and the "why" of IRT. It describes simple and more complex IRT models and shows how they are applied with the help of widely available software packages. Chapters follow a consistent format and build sequentially, taking the reader from model development through the fit analysis and interpretation phases that one would perform in practice. The use of common empirical data sets across the chapters facilitates understanding of the various models and how they relate to one another.

The Effects of Content Homogeneity and Equating Method on the Accuracy of Common-item Test Equating Feb 10 2021

Scales, Norms, and Equivalent Scores Jun 16 2021

The History of Educational Measurement Apr 26 2022 The History of Educational Measurement collects essays on the most important topics in educational testing, measurement, and psychometrics. Authored by the field’s top scholars, this book offers unique historical viewpoints, from origins to modern applications, of formal testing programs and mental measurement theories. Topics as varied as large-scale testing, validity, item-response theory, federal involvement, and notable assessment controversies complete a survey of the field’s greatest challenges and most important achievements. Graduate students, researchers, industry professionals, and other stakeholders will find this volume relevant for years to come.

A Comparison of Kernel Equating and Item Response Theory True Score Equating Oct 28 2019 This study compares the accuracy of NEAT-design IRT true score equating (TIRT) and kernel equating (KE) in different conditions. The relative accuracy of three methods (Stocking-Lord transformation based TIRT (SL TIRT), kernel chain equipercentile equating (KE CE) and kernel post-stratification equating (KE PSE)) are examined in specific and general conditions. Simulated data are used for the analysis. 60 different specific conditions are generated and the relative performances of the methods in each condition are compared using ANOVA. Then the error of each equating line is summarized with RMSD. 180 RMSD values in 60 conditions are categorized into 20 general conditions. RMSD values in each level of the general condition are compared with RMSD. All findings have led to the conclusion that KE CE is the superior equating method for all general and specific conditions. Compared to KE PSE and SL TIRT, it produces more accurate and stable results. Closer examination shows how KE CE is consistently less affected by various adverse conditions, how SL TIRT is more affected, and how KE PSE is drastically affected. Hence, among the three methods, KE CE is preferred over KE PSE and SL TIRT, while SL TIRT is preferred over KE PSE.

Handbook of Item Response Theory Mar 02 2020 Drawing on the work of internationally acclaimed experts in the field, Handbook of Item Response Theory, Volume 3: Applications presents applications of item response theory to practical testing problems. While item response theory may be known primarily for its advances in theoretical modeling of responses to test items, equal progress has been made in its providing innovative solutions to daily testing problems. This third volume in a three-volume set highlights the major applications. Specifically, this volume covers applications to test item calibration, item analysis, model fit checking, test-score interpretation, optimal test design, adaptive testing, standard setting, and forensic analyses of

response data. It describes advances in testing in areas such as large-scale educational assessment, psychological testing, health measurement, and measurement of change. In addition, it extensively reviews computer programs available to run any of the models and applications in Volume One and Three. Features Includes contributions from internationally acclaimed experts with a history of advancing applications of item response theory Provides extensive cross-referencing and common notation across all chapters in this three-volume set Underscores the importance of treating each application in a statistically rigorous way Reviews major computer programs for item response theory analyses and applications. Wim J. van der Linden is a distinguished scientist and director of research and innovation at Pacific Metrics Corporation. Dr. van der Linden is also a professor emeritus of measurement and data analysis at the University of Twente. His research interests include test theory, adaptive testing, optimal test assembly, parameter linking, test equating, and response-time modeling as well as decision theory and its applications to problems of educational decision making.

Test Scoring Apr 02 2020 Test Scoring provides a summary of traditional true score test theory and modern item response theory related to scoring tests, as well as novel developments resulting from the integration of these approaches. The background material introduced in the first four chapters builds a foundation for the new developments covered in later chapters. These new methods offer alternative psychometric approaches to scoring complex assessments. Each of the book's contributors draws from the classic literature of traditional test theory, as well as psychometric developments of the past decade. The emphasis is on large-scale educational measurement but the topics and procedures may be applied broadly within many measurement contexts. Numerous graphs and illustrative examples based on real tests and actual data are integrated throughout. This multi-authored volume shows the reader how to combine the coded outcomes on individual test items into a numerical summary about the examinee's performance. This book is intended for researchers and students in education and other social sciences interested in educational assessment and policy, the design and development of tests, and the procedures for test administration and scoring. Prerequisites include an introduction to educational and psychological measurement and basic statistics. Knowledge of differential and integral calculus and matrix algebra is helpful but not required.

Iterative Methods for Sparse Linear Systems Jul 06 2020 Mathematics of Computing -- General.

Statistical Models for Test Equating, Scaling, and Linking Aug 19 2021 The goal of this book is to emphasize the formal statistical features of the practice of equating, linking, and scaling. The book encourages the view and discusses the quality of the equating results from the statistical perspective (new models, robustness, fit, testing hypotheses, statistical monitoring) as opposed to placing the focus on the policy and the implications, which although very important, represent a different side of the equating practice. The book contributes to establishing “equating” as a theoretical field, a view that has not been offered often before. The tradition in the practice of equating has been to present the knowledge and skills needed as a craft, which implies that only with years of experience under the guidance of a knowledgeable practitioner could one acquire the required skills. This book challenges this view by indicating how a good equating framework, a sound understanding of the assumptions that underlie the psychometric models, and the use of statistical tests and statistical process control tools can help the practitioner navigate the difficult decisions in choosing the final equating function. This book provides a valuable reference for several groups: (a) statisticians and psychometricians interested in the theory behind equating methods, in the use of model-based statistical methods for data smoothing, and in the evaluation of the equating results in applied work; (b) practitioners who need to equate tests, including those with these responsibilities in testing companies, state testing agencies, and school districts; and (c) instructors in psychometric, measurement, and psychology programs.

Modern Psychometrics with R Mar 14 2021 This textbook describes the broadening methodology spectrum of psychological measurement in order to meet the statistical needs of a modern psychologist. The way statistics is used, and maybe even perceived, in psychology has drastically changed over the last few years; computationally as well as methodologically. R has taken the field of psychology by storm, to the point that it can now safely be considered the lingua franca for statistical data analysis in psychology. The goal of this book is to give the reader a starting point when analyzing data using a particular method, including advanced versions, and to hopefully motivate him or her to delve deeper into additional literature on the method. Beginning with one of the oldest psychometric model formulations, the true score model, Mair devotes the early chapters to exploring confirmatory factor analysis, modern test theory, and a sequence of multivariate exploratory method. Subsequent chapters present special techniques useful for modern psychological applications including correlation networks, sophisticated parametric clustering techniques, longitudinal measurements on a single participant, and functional magnetic resonance imaging (fMRI) data. In addition to using real-life data sets to demonstrate each method, the book also reports each method in three parts-- first describing when and why to apply it, then how to compute the method in R, and finally how to present, visualize, and interpret the results. Requiring a basic knowledge of statistical methods and R software, but written in a casual tone, this text is ideal for graduate students in psychology. Relevant courses include methods of scaling, latent variable modeling, psychometrics for graduate students in Psychology, and multivariate methods in the social sciences.

Test Equating, Scaling, and Linking Nov 02 2022 By providing an introduction to test equating which both discusses the most frequently used equating methodologies and covering many of the practical issues involved, this volume expands upon the coverage of the first edition by providing a new chapter on test scaling and a second on test linking.

Fundamentals of Item Response Theory Feb 22 2022 By using familiar concepts from classical measurement methods and basic statistics, this book introduces the basics of item response theory (IRT) and explains the application of IRT methods to problems in test construction, identification of potentially biased test items, test equating and computerized-adaptive testing. The book also includes a thorough discussion of alternative procedures for estimating IRT parameters and concludes with an exploration of new directions in IRT research and development.

The Wiley Handbook of Psychometric Testing May 28 2022 A must-have resource for researchers, practitioners, and advanced students interested or involved in psychometric testing Over the past hundred years, psychometric testing has proved to be a valuable tool for measuring personality, mental ability, attitudes, and much more. The word ‘psychometrics’ can be translated as ‘mental measurement’; however, the implication that psychometrics as a field is confined to psychology is highly misleading. Scientists and practitioners from virtually every conceivable discipline now use and analyze data collected from questionnaires, scales, and tests developed from psychometric principles, and the field is vibrant with new and useful methods and approaches. This handbook brings together contributions from leading psychometricians in a diverse array of fields around the globe. Each provides accessible and practical information about their specialist area in a three-step format covering historical and standard approaches, innovative issues and techniques, and practical guidance on how to apply the methods discussed. Throughout, real-world examples help to illustrate and clarify key aspects of the topics covered. The aim is to fill a gap for information about psychometric testing that is neither too basic nor too technical and specialized, and will enable researchers, practitioners, and graduate students to expand their knowledge and skills in the area. Provides comprehensive coverage of the field of psychometric testing, from designing a test through writing items to constructing and evaluating scales Takes a practical approach, addressing real issues faced by practitioners and researchers Provides basic and accessible mathematical and statistical foundations of all psychometric techniques discussed Provides example software code to help readers implement the analyses discussed

Discrete Choice Methods with Simulation Sep 27 2019 This book describes the new generation of discrete choice methods, focusing on the many advances that are made possible by simulation. Researchers use these statistical methods to examine the choices that consumers, households, firms, and other agents make. Each of the major models is covered: logit, generalized extreme value, or GEV (including nested and cross-nested logits), probit, and mixed logit, plus a variety of specifications that build on these basics. Simulation-assisted estimation procedures are investigated and compared, including maximum stimulated likelihood, method of simulated moments, and method of simulated scores. Procedures for drawing from densities are described, including variance reduction techniques such as anithetics and Halton draws. Recent advances in Bayesian procedures are explored, including the use of the Metropolis-Hastings algorithm and its variant Gibbs sampling. The second edition adds chapters on endogeneity and expectation-maximization (EM) algorithms. No other book incorporates all these fields, which have arisen in the past 25 years. The procedures are

applicable in many fields, including energy, transportation, environmental studies, health, labor, and marketing.
Applying Test Equating Methods Oct 01 2022 This book describes how to use test equating methods in practice. The non-commercial software R is used throughout the book to illustrate how to perform different equating methods when scores data are collected under different data collection designs, such as equivalent groups design, single group design, counterbalanced design and non equivalent groups with anchor test design. The R packages equate, kequate and SNSequate, among others, are used to practically illustrate the different methods, while simulated and real data sets illustrate how the methods are conducted with the program R. The book covers traditional equating methods including, mean and linear equating, frequency estimation equating and chain equating, as well as modern equating methods such as kernel equating, local equating and combinations of these. It also offers chapters on observed and true score item response theory equating and discusses recent developments within the equating field. More specifically it covers the issue of including covariates within the equating process, the use of different kernels and ways of selecting bandwidths in kernel equating, and the Bayesian nonparametric estimation of equating functions. It also illustrates how to evaluate equating in practice using simulation and different equating specific measures such as the standard error of equating, percent relative error, different that matters and others.
Theoretical and Practical Advances in Computer-based Educational Measurement Mar 26 2022 This open access book presents a large number of innovations in the world of operational testing. It brings together different but related areas and provides insight in their possibilities, their advantages and drawbacks. The book not only addresses improvements in the quality of educational measurement, innovations in (inter)national large scale assessments, but also several advances in psychometrics and improvements in computerized adaptive testing, and it also offers examples on the impact of new technology in assessment. Due to its nature, the book will appeal to a broad audience within the educational measurement community. It contributes to both theoretical knowledge and also pays attention to practical implementation of innovations in testing technology.
Measurement Theory and Applications for the Social Sciences Dec 23 2021 Which types of validity evidence should be considered when determining whether a scale is appropriate for a given measurement situation? What about reliability evidence? Using clear explanations illustrated by examples from across the social and behavioral sciences, this engaging text prepares students to make effective decisions about the selection, administration, scoring, interpretation, and development of measurement instruments. Coverage includes the essential measurement topics of scale development, item writing and analysis, and reliability and validity, as well as more advanced topics such as exploratory and confirmatory factor analysis, item response theory, diagnostic classification models, test bias and fairness, standard setting, and equating. End-of-chapter exercises (with answers) emphasize both computations and conceptual understanding to encourage readers to think critically about the material. ÿ
Foundations of Data Science Jun 04 2020 This book provides an introduction to the mathematical and algorithmic foundations of data science, including machine learning, high-dimensional geometry, and analysis of large networks. Topics include the counterintuitive nature of data in high dimensions, important linear algebraic techniques such as singular value decomposition, the theory of random walks and Markov chains, the fundamentals of and important algorithms for machine learning, algorithms and analysis for clustering, probabilistic models for large networks, representation learning including topic modelling and non-negative matrix factorization, wavelets and compressed sensing. Important probabilistic techniques are developed including the law of large numbers, tail inequalities, analysis of random projections, generalization guarantees in machine learning, and moment methods for analysis of phase transitions in large random graphs. Additionally, important structural and complexity measures are discussed such as matrix norms and VC-dimension. This book is suitable for both undergraduate and graduate courses in the design and analysis of algorithms for data.
Advancing Human Assessment Jul 18 2021 This book is open access under a CC BY-NC 2.5 license.?? This book describes the extensive contributions made toward the advancement of human assessment by scientists from one of the world's leading research institutions, Educational Testing Service. The book's four major sections detail research and development in measurement and statistics, education policy analysis and evaluation, scientific psychology, and validity. Many of the developments presented have become de-facto standards in educational and psychological measurement, including in item response theory (IRT), linking and equating, differential item functioning (DIF), and educational surveys like the National Assessment of Educational Progress (NAEP), the Programme of international Student Assessment (PISA), the Progress of International Reading Literacy Study (PIRLS) and the Trends in Mathematics and Science Study (TIMSS). In addition to its comprehensive coverage of contributions to the theory and methodology of educational and psychological measurement and statistics, the book gives significant attention to ETS work in cognitive, personality, developmental, and social psychology, and to education policy analysis and program evaluation. The chapter authors are long-standing experts who provide broad coverage and thoughtful insights that build upon decades of experience in research and best practices for measurement, evaluation, scientific psychology, and education policy analysis. Opening with a chapter on the genesis of ETS and closing with a synthesis of the enormously diverse set of contributions made over its 70-year history, the book is a useful resource for all interested in the improvement of human assessment.
Quantitative Psychology Jan 12 2021 This proceedings book highlights the latest research and developments in psychometrics and statistics. Featuring contributions presented at the 82nd Annual Meeting of the Psychometric Society (IMPS), organized by the University of Zurich and held in Zurich, Switzerland from July 17 to 21, 2017, its 34 chapters address a diverse range of psychometric topics including item response theory, factor analysis, causal inference, Bayesian statistics, test equating, cognitive diagnostic models and multistage adaptive testing. The IMPS is one of the largest international meetings on quantitative measurement in psychology, education and the social sciences, attracting over 500 participants and 250 paper presentations from around the world every year. This book gathers the contributions of selected presenters, which were subsequently expanded and peer-reviewed.
The Kernel Method of Test Equating Jul 30 2022 KE is applied to the four major equating designs and to both Chain Equating and Post-Stratification Equating for the Non-Equivalent groups with Anchor Test Design. It will be an important reference for several groups: (a) Statisticians (b) Practitioners and (c) Instructors in psychometric and measurement programs. The authors assume some familiarity with linear and equipercentile test equating, and with matrix algebra.
Test Theory Sep 07 2020 This book introduces the reader to the main quantitative concepts, methods, and computational techniques needed for the development, evaluation, and application of tests in the behavioral/social sciences, including educational tests. Two empirical examples are carried throughout to illustrate alternative methods. Other data sets are used for special illustrations. Self-contained programs for confirmatory and exploratory factor analysis are available on the Web. Intended for students of psychology, particularly educational psychology, as well as social science students interested in how tests are constructed and used, prerequisites include a course on statistics. The programs and data files for this book can be downloaded from www.psypress.com/test-theory/
Test Equating, Scaling, and Linking Jan 24 2022 By providing an introduction to test equating which both discusses the most frequently used equating methodologies and covering many of the practical issues involved, this volume expands upon the coverage of the first edition by providing a new chapter on test scaling and a second on test linking.
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administration, scoring, interpretation, and development of measurement instruments. Coverage includes the essential measurement topics of scale development, item writing and analysis, and reliability and validity, as well as more advanced topics such as exploratory and confirmatory factor analysis, item response theory, diagnostic classification models, test bias and fairness, standard setting, and equating. End-of-chapter exercises (with answers) emphasize both computations and conceptual understanding to encourage readers to think critically about the material.

Educational Measurement for Applied Researchers Apr 14 2021 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.

Multidimensional Item Response Theory Nov 21 2021 First thorough treatment of multidimensional item response theory Description of methods is supported by numerous practical examples Describes procedures for multidimensional computerized adaptive testing

Psychometric Methods May 16 2021 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.

Physical Activity Assessments for Health-related Research Nov 09 2020 And examples -- References -- Construct validity in physical activity research / Matthew T. Mahar and David A. Rowe -- Definitional stage -- Confirmatory stage -- Theory-testing stage -- Summary -- References -- Physical activity data : odd distributions yield strange answers / Jerry R. Thomas and Katherine T. Thomas -- Overview of the general linear model and rank-order procedures -- Determining whether data are normally distributed -- Application of rank-order procedures -- Data distributions and correlation -- Extensions of GLM rank-order statistical procedures -- Summary -- Endnote -- References -- Equating and linking of physical activity questionnaires / Weimo Zhu -- What is scale equating? -- Equating methods -- Practical issues of scale equating -- Remaining challenges and future research directions -- Summary -- References.