

Contents

Preface	7
Chapter 1: Mokken Scale Analysis: Core Issues	9
1.1 Overview.....	9
1.2 Guttman Scaling.....	11
1.3 Mokken Scale Analysis.....	13
1.4 Comparison with the Rasch Model.....	20
1.5 Comparison with the Classical Test Theory.....	22
1.6 Mokken Scale Analysis for Polytomous Items.....	24
1.7 Reliability.....	27
1.8 Summary.....	28
Chapter 2: Mokken Scale Analysis: Advanced Issues	30
2.1 Overview.....	30
2.2 Scalability Coefficients.....	30
2.3 Automated Item Selection Procedure (AISP).....	36
2.4 Monotonicity.....	42
2.5 Invariant Item Ordering (IIO).....	45
2.6 Sample Size in MSA.....	51
2.7 Contribution of MSA to Test Validation.....	53
2.8 Criticism of Mokken Scale Analysis.....	56
2.9 Summary.....	58
Chapter 3: <i>mokken</i> Package Tutorial	60
3.1 Overview.....	60
3.2 Automated Item Selection Procedure (AISP).....	60
3.3 Scalability Coefficients.....	65
3.4 Monotonicity.....	69
3.5 Invariant Item Ordering (IIO).....	71
3.6 Nonintersection of ISRFs.....	76
3.7 Reliability.....	80
3.8 Identifying Outliers.....	80
3.9 Two-Level MSA.....	82

Chapter 4: Application of MSA to a Dichotomous Test	84
4.1 Overview	84
4.2 Analysis.....	84
4.3 Comparison with the Rasch Model	88
Chapter 5: Application of MSA to Polytomous Items	95
5.1 Overview	95
5.2 Data Source and Material.....	95
5.3 Analysis.....	96
Chapter 6: Application of MSA to a Partial Credit Test	103
6.1 Overview	103
6.2 Introduction.....	103
6.3 Seven-Point Scale (Sample 1).....	104
6.4 Twenty-One-Point Scale (Sample 1).....	119
6.5 Seven-Point Scale (Sample 2).....	132
6.6 Twenty-One-Point Scale (Sample 2).....	134
6.7 Discussion.....	137
Chapter 7: Application of MSA to Rater-Mediated Performance Assessment	139
7.1 Overview.....	139
7.2 MSA for Performance Assessment.....	139
7.3 Analysis of Essay Writing.....	143
Chapter 8: Application of MSA to Two-Level Data	150
8.1 Overview.....	150
8.2 Introduction.....	150
8.3 Two-Level Mokken Scale Analysis	155
8.4 Analyses and Results	155
Bibliography	158
About the Author	168