

Contents

PART I. BACKGROUND

1. Introduction and Overview Rick H. Hoyle	3
2. Key Advances in the History of Structural Equation Modeling Ross L. Matsueda	17
3. Graphical Representation of Structural Equation Models Using Path Diagrams Moon-ho Ringo Ho, Stephen Stark, and Alexander Chernyshenko	43
4. Latent Variables in Structural Equation Modeling Kenneth A. Bollen and Rick H. Hoyle	56
5. The Causal Foundations of Structural Equation Modeling Judea Pearl	68
6. Simulation Methods in Structural Equation Modeling Deborah L. Bandalos and Phillip Gagné	92

PART II. FUNDAMENTALS

7. Assumptions in Structural Equation Modeling Rex B. Kline	111
8. Model Specification in Structural Equation Modeling Rick H. Hoyle	126
9. Identification: A Nontechnical Discussion of a Technical Issue David A. Kenny and Stephanie Milan	145
10. Estimation in Structural Equation Modeling Pui-Wa Lei and Qiong Wu	164
11. Power Analysis for Tests of Structural Equation Models Taehun Lee, Li Cai, and Robert C. MacCallum	181

12. Categorical Data in the Structural Equation Modeling Framework Michael C. Edwards, R. J. Wirth, Carrie R. Houts, and Nuo Xi	195
13. Model Fit and Model Selection in Structural Equation Modeling Stephen G. West, Aaron B. Taylor, and Wei Wu	209
14. Model Modification in Structural Equation Modeling Chih-Ping Chou and Jimi Huh	232
15. Equivalent Models: Concepts, Problems, Alternatives Larry J. Williams	247

PART III. IMPLEMENTATION

16. Preparing Data for Structural Equation Modeling: Doing Your Homework Patrick S. Malone and Jill B. Lubansky	263
17. Structural Equation Modeling with Missing Data John W. Graham and Donna L. Coffman	277
18. Bootstrapping Standard Errors and Data–Model Fit Statistics in Structural Equation Modeling Gregory R. Hancock and Min Liu	296
19. Choosing Structural Equation Modeling Computer Software: Snapshots of LISREL, EQS, Amos, and Mplus Barbara M. Byrne	307
20. Structural Equation Modeling in R with the sem and OpenMx Packages John Fox, Jarrett E. Byrnes, Steven Baker, and Michael C. Neale	325
21. The Structural Equation Modeling Research Report Anne Boomsma, Rick H. Hoyle, and A. T. Panter	341

PART IV. BASIC APPLICATIONS

22. Confirmatory Factor Analysis Timothy A. Brown and Michael T. Moore	361
23. Investigating Measurement Invariance Using Confirmatory Factor Analysis Roger E. Millsap and Margarita Olivera-Aguilar	380
24. A Flexible Structural Equation Modeling Approach for Analyzing Means Samuel B. Green and Marilyn S. Thompson	393
25. Mediation/Indirect Effects in Structural Equation Modeling JeeWon Cheong and David P. MacKinnon	417
26. Structural Equation Models of Latent Interaction Herbert W. Marsh, Zhonglin Wen, Benjamin Nagengast, and Kit-Tai Hau	436
27. Autoregressive Longitudinal Models Jeremy C. Biesanz	459
28. Scale Construction and Development Using Structural Equation Modeling Tenko Raykov	472

PART V. ADVANCED APPLICATIONS

29. Measurement Models for Ordered-Categorical Indicators James A. Bovaird and Natalie A. Koziol	495
30. Multilevel Structural Equation Modeling Sophia Rabe-Hesketh, Anders Skrondal, and Xiaohui Zheng	512
31. An Overview of Growth Mixture Modeling: A Simple Nonlinear Application in OpenMx Mariya P. Shiiko, Nilam Ram, and Kevin J. Grimm	532
32. Latent Curve Modeling of Longitudinal Growth Data John J. McArdle	547
33. Dynamic Factor Models for Longitudinally Intensive Data: Description and Estimation via Parallel Factor Models of Cholesky Decomposition Phillip Wood	571
34. Latent Trait-State Models David A. Cole	585
35. Longitudinal Structural Models for Assessing Dynamics in Dyadic Interactions Emilio Ferrer and Hairong Song	601
36. Structural Equation Modeling in Genetics Sanja Franić, Conor V. Dolan, Denny Borsboom, and Dorret I. Boomsma	617
37. Structural Equation Models of Imaging Data Anthony R. McIntosh and Andrea B. Protzner	636
38. Bayesian Structural Equation Modeling David Kaplan and Sarah Depaoli	650
39. Spatial Structural Equation Modeling Melanie M. Wall	674
40. Automated Structural Equation Modeling Strategies George A. Marcoulides and Marsha Ing	690
Author Index	705
Subject Index	717
About the Editor	735
Contributors	737