

Tenko Raykov, Ph. D.
Professor of Quantitative Methods
Michigan State University

Short Biography and Selected Publications

DEGREES:

1986 – Ph. D. in Mathematical Psychology, Department of Psychology, Faculty of Mathematics and Natural Sciences, Humboldt University, Berlin, Germany
(defended: January, 1987
predicate: summa cum laude)

1981 – M. Sc. in Probability and Statistics, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Humboldt University, Berlin, Germany
(defended: July, 1981).

FACULTY POSITIONS:

- 2005 – Professor of Quantitative Methods
Measurement and Quantitative Methods
Michigan State University
East Lansing, Michigan, USA;
- 1998 – 2005: Professor of Quantitative Psychology and Psychometrics,
Department of Psychology,
Fordham University, New York, USA;
- 1992 – 1998: Senior Lecturer in Quantitative Psychology,
Department of Psychology,
University of Melbourne, Australia;
- 1991 – 1992: Lecturer in Psychological Statistics,
Department of Psychology,
University of Sydney, Australia;
- Visiting Research Fellow:
 - Pennsylvania State University, College of Health and Human Development, State College, Pennsylvania, USA (1990);
 - Stockholm Institute of Education, Stockholm, Sweden (1990).

RESEARCH INTERESTS:

- Statistical Modeling and Analysis in the Behavioral, Social, and Health Sciences
- Measurement in the Behavioral, Social, and Health Sciences
- Structural Equation Modeling and Latent Variable Modeling
- Multilevel Modeling, Mixed Effects Models
- Longitudinal Data Modeling, Measuring Change
- Psychometric Theories (Theories of Behavioral Measurement)
- Reliability and Validity Evaluation
- Measuring Instrument (Scale, Test) Construction and Development
- Mixture Modeling, Latent Class Analysis
- Multivariate Statistics
- Missing Data Analysis (Analysis of Incomplete Data Sets)
- Item Responses Theory (Item Response Modeling)
- Survival Analysis, Event-History Modeling, and Duration Analysis
- Survey Analysis (Complex Sample Study Designs, Nationally Representative Sample Studies)
- Developmental Social and Health Science.

SELECTED PUBLICATIONS:

Books:

- Raykov, T., & Marcoulides, G. A. (2018). *A Course in Item Response Theory and Modeling with Stata*. College Station, TX: Stata Press.
- Raykov, T., & Marcoulides, G. A. (2012). *Basic Statistics: An Introduction with R*. New York: Rowman & Littlefield.
- Raykov, T., Marcoulides, G. A. (2011). *Introduction to Psychometric Theory*. New York: Taylor & Francis.
- Raykov, T., & Marcoulides, G. A. (2008). *An Introduction to Applied Multivariate Analysis*. New York, NY: Taylor & Francis.
- Raykov, T., & Marcoulides, G. A. (2006). *A First Course in Structural Equation Modeling* (Second Edition). Mahwah, NJ: Erlbaum (first edition published 2000).

Journal Articles (By Journal, Peer-Refereed; Handbook Chapters, Books Chapters, And Theses Follow)

- Raykov, T. (in press). Strong Consistency of Reliability Estimators for Multiple-Component Measuring Instruments. *Structural Equation Modeling*.
- Raykov, T. (in press). Strong Convergence of the Coefficient Alpha Estimator for Reliability of Multiple-Component Measuring Instruments. *Structural Equation Modeling*.
- Raykov, T., Harrison, M., & Marcoulides, G. A. (in press). Examining Class Separation Contribution by Observed Indicators in Latent Class Models: A Multiple Testing Procedure. *Structural Equation Modeling*.
- Raykov, T., Marcoulides, G. A., Menold, N., Zhang, M., & Li, T. (in press). On Examining Intervention Effects Upon Ability Development Using Latent Variable Modeling. *Structural Equation Modeling*.
- Raykov, T., Marcoulides, G. A., Menold, N., & Harrison, M. (in press). Revisiting the Bi-Factor Model: Can Mixture Modeling Help Assess Its Applicability? *Structural Equation Modeling*.
- Raykov, T., Zajacova, A., Gorelick, P., & Marcoulides, G. A. (2018). Using Latent Variable Modeling for Discrete Time Survival Analysis: Examining the Depression Links to Mortality in Middle and Late Life. *Structural Equation Modeling*, 25, 287-293.
- Raykov, T., Gorelick, P., Zajacova, A., & Marcoulides, G. A. (2018). Discrete Time Survival Analysis Via Latent Variable Modeling: A Note on Lagged Depression Links to Stroke in Middle and Late Life. *Structural Equation Modeling*, 25, 115-120.
- Raykov, T., & Marcoulides, G. A. (2017). Evaluation of True Criterion Validity for Unidimensional Multi-Component Measuring Instruments in Longitudinal Studies. *Structural Equation Modeling*, 24, 599-606.

- Raykov, T., Marcoulides, G. A., & Gabler, S. (2017). Improved Estimation of Maximal Reliability for Unidimensional Multi-Component Measuring Instruments in Repeated Measure Studies. *Structural Equation Modeling, 24*, 755-767.
- Raykov, T., Marcoulides, G. A., Gabler, S., & Lee, Y. (2017). Testing Criterion Correlations With Scale Component Measurement Errors Using Latent Variable Modeling. *Structural Equation Modeling, 24*, 68-474.
- Raykov, T., Gorelick, P., Zajacova, A., & Marcoulides, G. A. (2017). On the Potential of Discrete Time Survival Analysis Using Latent Variable Modeling: An Application to the Study of the Vascular Depression Hypothesis. *Structural Equation Modeling, 24*, 926-935.
- Gabler, S., & Raykov, T. (2017). Evaluation of Maximal Reliability for Unidimensional Measuring Instruments With Correlated Errors. *Structural Equation Modeling, 24*, 104-111.
- Raykov, T., & Marcoulides, G. A. (2016). On Examining Specificity in Latent Construct Indicators. *Structural Equation Modeling, 23*, 845-855.
- Raykov, T., & West, B. T. (2016). On Enhancing Plausibility of the Missing at Random Assumption in Incomplete Data Analyses Via Evaluation of Response-Auxiliary Variable Correlations. *Structural Equation Modeling, 23*, 43-53.
- Raykov, T., & Marcoulides, G. A. (2016). Scale Reliability Evaluation Under Multiple Assumption Violations. *Structural Equation Modeling, 23*, 302-313.
- Raykov, T., & Traynor, A. (2016). Evaluation of Scale Reliability in Complex Sampling Designs. *Structural Equation Modeling, 23*, 270-277.
- Raykov, T., Gabler, S., & Dimitrov, D. M. (2016). Maximal Reliability and Composite Reliability: A Latent Variable Modeling Approach to Their Difference Evaluation. *Structural Equation Modeling, 23*, 384-391.
- Raykov, T., Lee, C.-L., & Marcoulides, G. A. (2016). On Testing Normality in Incomplete Data Sets. *Structural Equation Modeling, 23*, 595-600.
- Raykov, T., Patelis, T., Lee, C.-L., & Marcoulides, G. A. (2016). Examining Omitted Intermediate Levels in Multilevel Settings. *Structural Equation Modeling, 23*, 111-115.
- Raykov, T., Gabler, S., & Dimitrov, D. M. (2016). Maximal Criterion Validity and Scale Criterion Validity: A Latent Variable Modeling Approach to Examining Their Difference. *Structural Equation Modeling, 23*, 544-554.
- Raykov, T., & Marcoulides, G. A. (2015). On Examining the Underlying Normal Variable Assumption in Latent Variable Models with Categorical Indicators. *Structural Equation Modeling, 22*, 581-587.
- Raykov, T., West, B. T., & Traynor, A. (2015). Evaluation of Coefficient Alpha for Multiple Component Measuring Instruments in Complex Sample Designs. *Structural Equation Modeling, 22*, 429-438.
- Raykov, T., Rodenberg, C. N., & Narayanan, A. (2015). Optimal Shortening of Psychometric Scales. *Structural Equation Modeling, 22*, 227-235.
- Raykov, T., & Penev, S. (2014). Latent Growth Curve Models Selection: The Potential of Individual Case Residuals. *Structural Equation Modeling, 21*, 20-30.

- Raykov, T., & Marcoulides, G. A. (2014). Population Proportion Explained Variance in Principal Component Analysis: A Note on Its Evaluation via a Large-Sample Approach. *Structural Equation Modeling, 21*, 588-595.
- Raykov, T., Schneider, B. C., Marcoulides, G. A., & Lichtenberg, P. A. (2014). Estimation of Measure Correlations with Incomplete Data Sets. *Structural Equation Modeling, 21*, 318-324.
- Raykov, T., & Marcoulides, G. A. (2013). Meta-Analysis of Reliability Coefficients Using Latent Variable Modeling. *Structural Equation Modeling, 20*, 338-353.
- Raykov, T., & Zajacova, A. (2012). On Latent Change Model Choice in Longitudinal Studies. *Structural Equation Modeling, 19*, 580-592.
- Raykov, T., & Marcoulides, G. A. (2012). Evaluation of Validity and Reliability of Hierarchical Scales. *Structural Equation Modeling, 19*, 495-508.
- Raykov, T., Lichtenberg, P. A., & Paulson, D. (2012). Examining the Missing Completely At Random Mechanism in Incomplete Data Sets: A Multiple Testing Approach. *Structural Equation Modeling, 19*, 399-408.
- Raykov, T. (2011). On Testability of Missing Data Mechanisms in Incomplete Data Sets. *Structural Equation Modeling, 18*, 419-430.
- Raykov, T. (2011). Intra-Class Correlation Coefficients in Hierarchical Designs: Evaluation Using Latent Variable Modeling. *Structural Equation Modeling, 18*, 73-90.
- Raykov, T., & Marcoulides, G. A. (2011). Classical Item Analysis Using Latent Variable Modeling: A Note on a Direct Evaluation Procedure. *Structural Equation Modeling, 18*, 316-325.
- Raykov, T., & Penev, S. (2010). Estimation of Reliability Coefficients in Two-Level Designs Via Latent Variable Modeling. *Structural Equation Modeling, 17*, 629-641.
- Raykov, T., & Marcoulides, G. A. (2010). Group Comparisons in the Presence of Missing Data Using Latent Variable Modeling Techniques. *Structural Equation Modeling, 17*, 135-149.
- Raykov, T., Dimitrov, D. M., & Asparouhov, T. (2010). Evaluation of Scale Reliability with Binary Measures Using Latent Variable Modeling. *Structural Equation Modeling, 17*, 122-132.
- Raykov, T. (2009). Interval Estimation of Revision Effect on Scale Reliability Via Covariance Structure Modeling. *Structural Equation Modeling, 16*, 539-555.
- Raykov, T., Mels, G. (2009). Interval Estimation of Inter-Item and Item-Total Correlations for Ordinal Items of Multiple-Component Measuring Instruments. *Structural Equation Modeling, 16*, 99-108.
- Raykov, T., & Amemiya, Y. (2008). A Test for Time-Invariance of Variable Specificity in Multi-Wave Multiple Indicator Models. *Structural Equation Modeling, 15*, 449-461.
- Raykov, T., Brennan, M., Reinhardt, J., & Horowitz, A. (2008). Comparison of Mediator Effects: A Correlation Structure Analysis Method. *Structural Equation Modeling, 15*, 603-626.

- Raykov, T., & Marcoulides, G. A. (2007). Equivalent Models: A Challenge and Responsibility. *Structural Equation Modeling, 14*, 293-299.
- Raykov, T., & Mels, G. (2007). Lower-Level Mediation in Two-Level Studies: A Note on a Multilevel Structural Equation Modeling Approach. *Structural Equation Modeling, 14*, 321-329.
- Raykov, T. (2007). Longitudinal Analysis With Regressions Among Random Effects: A Latent Variable Modeling Approach. *Structural Equation Modeling, 14*, 146-169.
- Raykov, T. (2006). Interval Estimation of Individual Optimal Scores from Multiple-Component Measuring Instruments. *Structural Equation Modeling, 13*, 252-261.
- Raykov, T., & Marcoulides, G. A. (2006). On Multilevel Reliability Estimation From the Perspective of Structural Equation Modeling. *Structural Equation Modeling, 13*, 130-141.
- Raykov, T. (2005). Bias-Corrected Estimation of Noncentrality Parameters of Covariance Structure Models. *Structural Equation Modeling, 12*, 127-138.
- Raykov, T. (2005). Analysis of Longitudinal Data with Missing Values via Covariance Structure Modeling Using Full-Information Maximum Likelihood. *Structural Equation Modeling, 12*, 331-341.
- Raykov, T., & du Toit, S. H. C. (2005). Estimation of Reliability for Multiple-Component Measuring Instruments in Hierarchical Designs. *Structural Equation Modeling, 12*, 536-550.
- Raykov, T. (2004). Point and Interval Estimation of Reliability for Multiple-Component Measuring Instruments via Linear Constraint Covariance Structure Modeling. *Structural Equation Modeling, 11*, 342-356.
- Raykov, T., & Marcoulides, G. A. (2004). Using the Delta Method for Approximate Interval Estimation of Parametric Functions in Covariance Structure Models. *Structural Equation Modeling, 11*, 659-675.
- Raykov, T. (2003). A Test of Equality of Proportion Latent Explained Variance in Structural Equation Models. *Structural Equation Modeling, 10*, 534-543.
- Raykov, T., Marcoulides, G. A., & Boyd, J. (2003). Using Structural Equation Modeling Programs to Perform Matrix Manipulations and Data Simulation. *Structural Equation Modeling, 10*, 312-322.
- Raykov, T., & Shrout, P. (2002). Reliability of Scales with General Structure: Point and Interval Estimation Using a Structural Equation Modeling Approach. *Structural Equation Modeling, 9*, 195-212.
- Raykov, T. (2001). Testing Multivariable Covariance Structure and Means Hypotheses via Structural Equation Modeling. *Structural Equation Modeling, 8*, 224-257.
- Raykov, T. (2001). Approximate Confidence Interval for the Difference in Fit of Covariance Structure Models. *Structural Equation Modeling, 8*, 458-469.
- Raykov, T., & Marcoulides, G. A. (2001). Can There Be Infinitely Many Models Equivalent to a Given Structural Equation Model? *Structural Equation Modeling, 8*, 142-149.

- Raykov, T., & Marcoulides, G. A. (2001). Examination of Trends in Parameters of Covariance Structure Models: An Application to the Study of Increasing Complexity of Ability Measures. *Structural Equation Modeling*, 8, 617-645.
- Raykov, T. (2000). On the Large-Sample Bias, Variance, and Mean Squared Error of the Conventional Noncentrality Parameter Estimator of Covariance Structure Models. *Structural Equation Modeling*, 7, 431-441.
- Raykov, T. (2000). On Sensitivity of Structural Equation Modeling to Latent Pattern Misspecifications. *Structural Equation Modeling*, 7, 596-607.
- Raykov, T., & Marcoulides, G. A. (2000). A Method for Comparing Completely Standardized Solutions in Multiple Groups. *Structural Equation Modeling*, 7, 292-308.
- Raykov, T., & Marcoulides, G. A. (1999). On Desirability of Parsimony in Structural Equation Model Selection. *Structural Equation Modeling*, 6, 292-300.
- Raykov, T., Penev, S. (1998). Nested Covariance Structure Models: Noncentrality and Power of Restriction Test. *Structural Equation Modeling*, 5, 229-246.
- Raykov, T. (1996). Plasticity in Fluid Intelligence of Older Adults: An Individual Latent Growth Curve Modeling Application. *Structural Equation Modeling*, 3, 248-265.
- Raykov, T., & Penev, S. (1995). On an Approach to Structural Equation Model Fit Assessment. *Structural Equation Modeling*, 2, 146-151.
- Raykov, T., & Widaman, K. F. (1995). Issues in Applied Structural Equation Modeling Research. *Structural Equation Modeling*, 2, 289-318.
- Raykov, T. (2012). Estimation of Latent Construct Correlations in the Presence of Missing Data: A Note on a Latent Variable Modeling Approach. *British Journal of Mathematical and Statistical Psychology*, 65, 19-31.
- Raykov, T. (2011). Scale Validity Evaluation With Congeneric Measures in Hierarchical Designs. *British Journal of Mathematical and Statistical Psychology*, 64, 427-438.
- Raykov, T. (2011). Estimation of Convergent and Discriminant Validity With Multi-Trait Multi-Method Correlations. *British Journal of Mathematical and Statistical Psychology*, 64, 38-52.
- Raykov, T., & Zinbarg, R. E. (2011). Proportion General Factor Variance in a Hierarchical Multiple-Component Measuring Instrument: A Note on a Confidence Interval Procedure. *British Journal of Mathematical and Statistical Psychology*, 64, 193-207.
- Raykov, T. (2010). Proportion of Third-Level Variance in Multilevel Studies: A Note on an Interval Estimation Procedure. *British Journal of Mathematical and Statistical Psychology*, 63, 417-426.
- Raykov, T., & Penev, S. (2010). Testing Multivariate Mean Collinearity with Missing Data via Latent Variable Modeling. *British Journal of Mathematical and Statistical Psychology*, 63, 481-490.
- Penev, S., & Raykov, T. (2010). A Method of Bias Correction for Maximal Reliability with Dichotomous Measures. *British Journal of Mathematical and Statistical Psychology*, 63, 163-175.

- Raykov, T., & Penev, S. (2009). Estimation of Maximal Reliability for Multiple Component Instruments in Multilevel Designs. *British Journal of Mathematical and Statistical Psychology*, *62*, 129-142.
- Raykov, T. (2008). "Alpha if Item Deleted": A Note on Loss of Criterion Validity in Scale Development If Maximizing Coefficient Alpha. *British Journal of Mathematical and Statistical Psychology*, *61*, 275-285.
- Raykov, T. (2007). Reliability If Deleted, Not "Alpha If Deleted": Evaluation of Scale Reliability Following Component Deletion. *British Journal of Mathematical and Statistical Psychology*, *60*, 201-216.
- Raykov, T. (2007). Reliability of Multiple-Component Measuring Instruments: Improved Evaluation in Repeated Measure Studies. *British Journal of Mathematical and Statistical Psychology*, *60*, 119-136.
- Penev, S., & Raykov, T. (2006). Maximal Reliability and Power in Covariance Structure Models. *British Journal of Mathematical and Statistical Psychology*, *59*, 75-87.
- Raykov, T. (2005). Studying Group and Time Invariance in Maximal Reliability for Multiple-Component Measuring Instruments Via Covariance Structure Modeling. *British Journal of Mathematical and Statistical Psychology*, *58*, 301-317.
- Raykov, T. (2005). A Method for Testing Group Differences in Scale Validity in Multiple Populations. *British Journal of Mathematical and Statistical Psychology*, *58*, 173-184.
- Raykov, T., & Penev, S. (2005). Estimation of Multiple-Component Measuring Instrument Reliability in Test-Retest Designs. *British Journal of Mathematical and Statistical Psychology*, *58*, 285-299.
- Raykov, T., & Hancock, G. R. (2005). Examining Change in Maximal Reliability for Multiple-Component Measuring Instruments. *British Journal of Mathematical and Statistical Psychology*, *58*, 65-82.
- Raykov, T. (2004). Estimation of Maximal Reliability: A Note on a Covariance Structure Modeling Approach. *British Journal of Mathematical and Statistical Psychology*, *57*, 21-27.
- Raykov, T., & Tisak, J. (2004). Examining Time-Invariance in Reliability in Multi-Wave, Multi-Indicator Models: A Covariance Structure Modeling Approach Accounting for Indicator Specificity. *British Journal of Mathematical and Statistical Psychology*, *57*, 253-263.
- Raykov, T. (2002). Examining Group Differences in Reliability of Multi-Component Measuring Instruments. *British Journal of Mathematical and Statistical Psychology*, *55*, 145-158.
- Raykov, T. (2001). Estimation of Congeneric Scale Reliability via Covariance Structure Analysis with Nonlinear Constraints. *British Journal of Mathematical and Statistical Psychology*, *54*, 315-323.
- Raykov, T. (2001). A Note on Covariance Structure Modeling Methods for Testing Invariance in Stability and Reliability in Multi-Wave, Multi-Indicator Models. *British Journal of Mathematical and Statistical Psychology*, *54*, 95-101.

- Raykov, T., & Marcoulides, G. A. (2010). Multivariate Effect Size Estimation: Confidence Interval Construction via Latent Variable Modeling. *Journal of Educational and Behavioral Statistics*, 35, 407-421.
- Raykov, T., & Calantone, R. J. (2014). The Utility of Item Response Modeling in Marketing Research. *Journal of the Academy of Marketing Science*, 42, 337-360 (Editor invited article).
- Raykov, T., & Marcoulides, G. A. (in press). A Note on the Presence of Spurious Pseudo-Guessing Parameters for Three-Parameter Logistic Models in Heterogeneous Populations. *Educational and Psychological Measurement*.
- Raykov, T., & Marcoulides, G. A. (in press). Thanks, Coefficient Alpha - We Still Need You! *Educational and Psychological Measurement*.
- Raykov, T., Marcoulides, G. A., Harrison, M., & Menold, N. (in press). Multiple-Component Measurement Instruments in Heterogeneous Populations: Is There a Single Coefficient Alpha? *Educational and Psychological Measurement*.
- Raykov, T., Dimitrov, D. M., Marcoulides, G. A., & Harrison, M. (in press). On True Score Evaluation Using Item Response Theory Modeling. *Educational and Psychological Measurement*.
- Raykov, T., Dimitrov, D. M., Marcoulides, G. A., & Harrison, M. (in press). On The Connections Between Item Response Theory and Classical Test Theory: A Note on True Score Evaluation with Polytomous Items Via Item Response Modeling. *Educational and Psychological Measurement*.
- Marcoulides, K. M., & Raykov, T. (in press). Evaluation of Variance Inflation Factors in Regression Models Using Latent Variable Modeling. *Educational and Psychological Measurement*.
- Raykov, T., Goldammer, P., Marcoulides, G. A., Li, T., & Menold, N. (2018). Reliability of Scales with Second-Order Structure: Evaluation of Coefficient Alpha's Population Slippage Using Latent Variable Modeling. *Educational and Psychological Measurement*, 78, 1123-1135.
- Raykov, T., Menold, N., & Marcoulides, G. A. (2018). Studying Latent Criterion Validity for Complex Structure Measuring Instruments Using Latent Variable Modeling. *Educational and Psychological Measurement*, 78, 905-917.
- Raykov, T., Marcoulides, G. A., & Li, T. (2018). On the Unlikely Case of an Error-Free Principal Component From a Set of Fallible Measures. *Educational and Psychological Measurement*, 78, 708-712.
- Raykov, T., & Marcoulides, G. A. (2018). On Studying Common Factor Dominance and Approximate Unidimensionality in Multi-Component Measuring Instruments with Discrete Items. *Educational and Psychological Measurement*, 78, 504-516.
- Raykov, T., Dimitrov, D. M., Marcoulides, G. A., Li, T., & Menold, N. (2018). Examining Measurement Invariance and Differential Item Functioning With Discrete Latent Constructs Indicators: A Note on a Multiple Testing Procedure. *Educational and Psychological Measurement*, 78, 343-352.
- Raykov, T., Marcoulides, G. A., Dimitrov, D. M., & Li, T. (2018). Examining Construct

Congruence for Psychometric Tests: A Note on an Extension to Binary Items and Nesting Effects. *Educational and Psychological Measurement*, 78, 167-174.

- Raykov, T., Marcoulides, G. A., & Li, T. (2017). On the Fallibility of Principal Components in Research. *Educational and Psychological Measurement*, 77, 165-178.
- Raykov, T., Marcoulides, G. A., & Akaeze, H. (2017). Comparing Between and Within Group Variances in a Two-Level Study: A Latent Variable Modeling Approach to Evaluating Their Relationship. *Educational and Psychological Measurement*, 77, 351-361.
- Raykov, T., & Marcoulides, G. A. (2016). On the Relationship Between Classical Test Theory and Item Response Theory: From One to the Other and Back. *Educational and Psychological Measurement*, 76, 325-338.
- Raykov, T., Marcoulides, G. A., & Tong, B. (2016). Do Two or More Multi-Component Instruments Measure the Same Construct? - Testing Construct Congruence Using Latent Variable Modeling. *Educational and Psychological Measurement*, 76, 873-884.
- Raykov, T., Marcoulides, G. A., & Li, T. (2016). Measurement Instrument Validity Evaluation in Finite Mixtures. *Educational and Psychological Measurement*, 76, 1026-1044.
- Menold, N., & Raykov, T. (2016). Can Reliability of Multiple Component Measuring Instruments Depend on Response Option Presentation Mode? *Educational and Psychological Measurement*, 76, 454-469.
- Raykov, T., & Marcoulides, G. A. (2015). Scale Reliability Evaluation in Heterogeneous Populations. *Educational and Psychological Measurement*, 75, 875-892.
- Raykov, T., & Marcoulides, G. A. (2015). A Direct Latent Variable Modeling Based Procedure for Evaluation of Coefficient Alpha. *Educational and Psychological Measurement*, 75, 146-156.
- Raykov, T., & Marcoulides, G. A. (2015). Intra-Class Correlation Coefficients in Hierarchical Design Studies With Discrete Response Variables: A Note on a Direct Interval Estimation Procedure. *Educational and Psychological Measurement*, 75, 1063-1070.
- Raykov, T., Marcoulides, G. A., & Patelis, T. (2015). The Importance of the Assumption of Uncorrelated Errors in Psychometric Theory. *Educational and Psychological Measurement*, 75, 634-647.
- Dimitrov, D. M., Raykov, T., & AL-Qataee, A. A. (2015). Developing a Measure of General Academic Ability: An Application of Maximal Reliability and Optimal Linear Combination to High School Students' Scores. *Educational and Psychological Measurement*, 75, 475-490.
- Raykov, T., & Marcoulides, G. A. (2014). Identifying Useful Auxiliary Variables for Incomplete Data Analyses: A Note on a Group Difference Examination Approach. *Educational and Psychological Measurement*, 74, 537-550.
- Raykov, T., & Pohl, S. (2013). On Studying Common Factor Variance in Multiple Component Measuring Instruments. *Educational and Psychological Measurement*, 73, 191-209.
- Raykov, T., & Pohl, S. (2013). Essential Unidimensionality in Multiple Component Measuring Instruments: A Correlation Decomposition Approach. *Educational and Psychological Measurement*, 73, 581-600.

- Raykov, T., Lee, C.-H., Marcoulides, G. A., & Chang, C. (2013). A Commentary on the Relationship Between Model Fit and Saturated Path Models in Structural Equation Modeling Applications. *Educational and Psychological Measurement, 73*, 1054-1068.
- Raykov, T., Marcoulides, G. A., Lee, C.-L., & Chang, D. C. (2013). Studying Differential Item Functioning Via Latent Variable Modeling: A Note on a Multiple Testing Procedure. *Educational and Psychological Measurement, 73*, 898-908.
- Raykov, T., Marcoulides, G. A., & Patelis, T. (2013). Saturated Versus Identified Models: A Note on their Distinction. *Educational and Psychological Measurement, 73*, 162-168.
- Raykov, T., Dimitrov, D. M., von Eye, A., & Marcoulides, G. A. (2013). Inter-Rater Agreement Evaluation: A Latent Variable Modeling Approach. *Educational and Psychological Measurement, 73*, 512-531.
- Raykov, T., Marcoulides, G. A., & Millsap, R. E. (2013). Examining Factorial Invariance: A Multiple Testing Procedure. *Educational and Psychological Measurement, 73*, 713-727.
- Raykov, T. (2012). Propensity Score Analysis with Fallible Covariates: A Note on a Latent Variable Modeling Approach. *Educational and Psychological Measurement, 72*, 715-733.
- Raykov, T., Marcoulides, G. A., & Li, C.-H. (2012). Measurement Invariance for Latent Constructs in Multiple Populations: A Critical View and Refocus. *Educational and Psychological Measurement, 72*, 954-974.
- Raykov, T., Patelis, T., & Marcoulides, G. A. (2011). Examining Parallelism of Sets of Psychometric Measures Using Latent Variable Modeling. *Educational and Psychological Measurement, 71*, 1047-1061.
- Raykov, T. (2007). Evaluation of Revision Effect On Criterion Validity of Multiple-Component Measuring Instruments. *Multivariate Behavioral Research, 42*, 415-434.
- Raykov, T. (2006). Examining Temporal Stability of Scale Validity in Longitudinal Studies. *Multivariate Behavioral Research, 41*, 401-426.
- Penev, S., & Raykov, T. (2006). On the Relationship Between Maximal Reliability and Maximal Validity for Linear Composites. *Multivariate Behavioral Research, 41*, 105-126.
- Raykov, T., & Penev, S. (2006). A Direct Method for Obtaining Approximate Standard Error and Confidence Interval of Maximal Reliability for Composites with Congeneric Measures. *Multivariate Behavioral Research, 41*, 15-28.
- Raykov, T., & Grayson, D. A. (2003). A Test for Change of Composite Reliability in Scale Development. *Multivariate Behavioral Research, 38*, 143-159.
- Dimitrov, D. M., & Raykov, T. (2003). Validation of Cognitive Structures: A Structural Equation Modeling Approach. *Multivariate Behavioral Research, 38*, 1-23.
- Raykov, T. (2002). Analytic Estimation of Standard Error and Confidence Interval for Scale Reliability. *Multivariate Behavioral Research, 37*, 89-103.
- Raykov, T. (2000). A Method for Examining Stability in Reliability. *Multivariate Behavioral Research, 35*, 289-305.

- Raykov, T., & Penev, S. (1999). On Structural Equation Model Equivalence. *Multivariate Behavioral Research*, 34, 199-244.
- Raykov, T. (1998). " 'Satisfying a Simplex Structure is Simpler Than It Should Be' ": A Latent Curve Analysis Revisit. *Multivariate Behavioral Research*, 33, 343-363.
- Raykov, T. (1997). Scale Reliability, Cronbach's Coefficient Alpha, and Violations of Essential Tau-Equivalence for Fixed Congeneric Components. *Multivariate Behavioral Research*, 32, 329-354.
- Raykov, T. (1997). Equivalent Structural Equation Models and Group Equality Constraints. *Multivariate Behavioral Research*, 32, 95-104.
- Raykov, T. (1995). Multivariate Structural Modeling of Plasticity in Fluid Intelligence of Aged Adults. *Multivariate Behavioral Research*, 30, 255-287.
- Raykov, T. (2001). Bias of Coefficient Alpha for Congeneric Measures with Correlated Errors. *Applied Psychological Measurement*, 25, 69-76.
- Raykov, T. (1999). Are Simple Gain Scores Obsolete? On an Approach to the Study of Correlates and Predictors of Ability Growth. *Applied Psychological Measurement*, 23, 120-126.
- Raykov, T. (1998). A Method for Obtaining Standard Errors and Confidence Intervals of Composite Reliability for Congeneric Items. *Applied Psychological Measurement*, 22, 369-374.
- Raykov, T. (1998). Cronbach's Alpha and Reliability of Composite with Interrelated Nonhomogenous Items. *Applied Psychological Measurement*, 22, 375-385.
- Raykov, T. (1997). Estimation of Composite Reliability for Congeneric Measures. *Applied Psychological Measurement*, 21, 173-184.
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