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Solving Dimensionality Problem and Finding Statistical Constructs on Latent Regression Models: A Novel Methodology with Real Data Application

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Abstract : This paper presents a novel statistical methodology for measuring and founding constructs in Latent Regression Analysis. This approach uses the qualities of Factor Analysis in binary data with interpretations on Item Response Theory (IRT). In addition, based on the fundamentals of submodel theory and with a convergence of many ideas of IRT, we propose an algorithm not just to solve the dimensionality problem (nowadays an open discussion) but a new research field that promises more fear and realistic qualifications for examiners and a revolution on IRT and educational research. In the end, the methodology is applied to a set of real data set presenting impressive results for the coherence, speed and precision. Acknowledgments: This research was financed by Colciencias through the project: 'Multidimensional Item Response Theory Models for Practical Application in Large Test Designed to Measure Multiple Constructs' and both authors belong to SICS Research Group from Universidad Nacional de Colombia.

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