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Factor Analysis

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Definition

Factor analysis is a statistical method of reducing a larger number of variables into a smaller number of factors by examining patterns of inter-correlation among the variables. Highly intercorrelated variables are combined into relative unrelated factors. It is an attempt to find the simple structure of the data. For example, factor analysis might be applied to a set of test items in order to determine if different items might be organized into subtests. In conducting a factor analysis, the researcher must make decisions about the type of rotation used (orthogonal or oblique), the number of factors to extracted, the criteria for considering a factor loading as being meaningful, and finally the nature of the obtained factors.

Current Knowledge

There are many different methods and models of factor analysis, but the two basic general models are exploratory factor analysis and confirmatory

factor analysis. In exploratory factor analysis, decisions are made regarding the abovementioned categories, and the resulting factor structure is interpreted. In confirmatory factor analysis, a specific factor structure, either on the basis of prior research with a separate sample or on the basis of theory, is evaluated as to its fit to the data. Confirmatory factor analysis is therefore an evaluation of a model and allows a statistical test of the similarity of different factor structure models to each other.

Cross-References

► [Structural Equation Modeling](#)

References and Readings

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