Classical Test Theory

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Definition

Classical test theory is the body of concepts and methods that have formed the basis for psychological assessment. Classical test theory posits that observed scores are the additive function of true scores and error terms. True scores are the ideal or “true” value of a construct in a particular person or situation. The error term is the effect of factors extraneous to the construct of interest but which are elicited by the measurement process. Error terms are assumed to be independent of (or uncorrelated with) the true scores. Analysis of the reliability of a score can be accomplished by manipulating factors thought to be influencing the error term. For example, in order to examine the effect of factors related to time or instance of measurement, a test might be administered to the

same individuals on two different occasions. The relation between the two observed scores, determined by calculating a correlation coefficient or by performing an analysis of variance, helps to estimate the magnitude of the error term and the proportion of the observed score that is likely to be true score.

Cross-References

- [Item Response Theory](#)
- [Reliability](#)
- [Sources of Error](#)

References and Readings

- Embretson, S. E. (Ed.). (2010). *Measuring psychological constructs: Advances in model-based approaches*. Washington, DC: American Psychological Association.
- Lord, F. M., & Novick, M. R. (2008). *Statistical theories of mental test scores*. New York: Information Age Publishing.