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Propositions belonging to the dissertation

Flexible regression-based norming of psychological tests

Lieke Voncken

1. It is important to allow for nonlinearity, heterogeneity, and non-normality in regression-based norming models.

2. Model flexibility comes with a price.

3. In general, it is better to use a norming model that is too flexible than a model that is too restricted.

4. In many practical norming situations, good norms can be obtained with a norming model based on the Box-Cox Power Exponential (BCPE) distribution, modelling its distributional parameters as a function of polynomials and/or P-splines of predictor(s).

5. The free order procedure should be preferred over the fixed order procedure when automatically selecting the optimal BCPE model based on polynomials of the predictor.

6. Not reporting confidence intervals around normed scores gives a false sense of precision.

7. It is important to take into account the uncertainty in normed scores due to both test unreliability and sampling variability.

8. The uncertainty in normed scores due to sampling variability can be expressed well in confidence intervals using the posterior simulation approach.

9. Norm estimation can be made more efficient by including prior information.

10. Hermione should not be too happy when Remus Lupin said “Well, well, Hermione, you really are the brightest witch of your age I've ever met.” in Harry Potter and the Prisoner of Azkaban by J.K. Rowling.

11. The choice of predictor(s) in a norming model should first and foremost depend on the desired interpretation of the test score.

12. Test publishers should provide digital scoring forms to allow for normed test scores based on the testee’s exact predictor value(s).

13. Ondergemiddeld is niet hetzelfde als onvoldoende – Niek Frans, 2019