Flexible regression-based norming of psychological tests

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DOI:
10.33612/diss.124765653

Curriculum Vitae

Lieke Voncken (1992) completed her bachelor in Psychology (2013) and her research master in Social and Behavioral Sciences, with a specialization in Methodology and Statistics (2015, *cum laude*), at Tilburg University. In 2015, she started her PhD research on norming methods for psychological tests at the Department of Psychometrics and Statistics at the University of Groningen, supervised by Prof. dr. Marieke E. Timmerman and Prof. dr. Casper J. Albers, funded by the Dutch Research Council (NWO) within research programme 'Graduate Programme 2013'. During her PhD project, Lieke constructed the normed scores for six published psychological tests: the Cognitive test application (COTAPP), the Ekman 60 Faces Test (part of the FEEST), both the Dutch and German Intelligence and Development Scales (IDS-2), the Stanford Binet Intelligence test (SB5), and subtests of the Snijders-Oomen non-verbal intelligence test (SON-R 2-8). She presented her research at multiple international conferences, including the conference of the International Test Commission (ITC), the International Meeting of the Psychometric Society (IMPS), the European Conference of Psychological Assessment (ECPA), the conference of the National Council on Measurement in Education (NCME), the conference of the Dutch/Flemish Classification Society (VOC), and the joint conference of Computational and Financial Economics, and Computational and Methodological Statistics (CFE-CMStatistics). She received a travel grant for the CFE-CMStatistics conference.

In 2018, she visited Prof. dr. Thomas Kneib at the University of Göttingen for two months, to collaborate on Bayesian Gaussian distributional regression. She organized the monthly research meetings for her department, and she was PhD representative of the Interuniversity graduate school of Psychometrics and Sociometrics (IOPS) in 2018-2019. She followed several graduate courses on topics such as statistical consultancy, statistical learning, generalized additive models, generalized latent variable modeling, and copula-based modeling. In addition, she taught courses in the Psychology program, including statistics and research methods, and she supervised several bachelor theses. In 2019, she was awarded the 'Test- and Diagnostics prize' by the Dutch society for Neuropsychology (NVN) for her contribution to neuropsychological test development. As of January 2020,

she works as an assistant professor at the Department of Methodology and Statistics at Tilburg University.

List of publications

Peer-reviewed publications

Voncken, L., Albers, C. J., & Timmerman, M. E. (2019). Model selection in continuous test norming with GAMLSS. *Assessment, 26*(7), 1329-1346. doi:10.1177/1073191117715113

Voncken, L., Albers, C. J., & Timmerman, M. E. (2018). Improving confidence intervals for normed test scores: Include uncertainty due to sampling variability. *Behavior Research Methods, 51*(2), 826-839. doi:10.3758/s13428-018-1122-8

Professional publications

Rommelse, N., Brinkman, A., Slaats-Willemse, D., Timmerman, M. E., Voncken, L., de Zeeuw, P., Luman, M., & Hartman, C. (2020). De Cognitieve Test Applicatie (COTAPP): geavanceerde computertest voor het meten van aandacht, informatieverwerking en executieve functies bij kinderen. *[The Cognitive Test Application (COTAPP): an advanced computer test for measuring attention, information processing and executive functions in children.] Kind en Adolescent, 41*(1), 50-80. doi:10.1007/s12453-019-00228-1

Voncken, L., Timmerman, M. E., Spikman, J. M., & Huitema, R. (2018). Beschrijving van de nieuwe, Nederlandse normering van de Ekman 60 Faces Test (EFT), onderdeel van de FEEST. *[Description of the new, Dutch norming of the Ekman 60 Faces Test (EFT), part of the FEEST.] Tijdschrift voor Neuropsychologie, 13*(2), 143-151.

Submitted

Voncken, L., Kneib, T., Albers, C. J., Umlauf, N., & Timmerman, M. E. (conditionally accepted). Bayesian Gaussian distributional regression models for more efficient norm estimation. Available as preprint from https://psyarxiv.com/7j8ym/

Voncken, L., Albers, C. J., & Timmerman, M. Bias-variance trade-off in continuous test norming. Available as preprint from https://psyarxiv.com/cz8k3/

Timmerman, M. E., Voncken, L., & Albers, C. J. A tutorial on regression-based norming of psychological tests with GAMLSS. Available as preprint from https://doi.org/10.31219/osf.io/mdc9u

Psychological test contributions

Grob, A., Gygi, J. T., & Hagmann-von Arx, P. (2019). SB5: Stanford-Binet Intelligence Scales, Fifth Edition. Bern, Switzerland: Hogrefe. [The norms of this test have been computed and are described by L. Voncken, S. Fleurke, and M. E. Timmerman]

Rommelse, N., Hartman, C., Brinkman, A., Slaats-Willemse, D., de Zeeuw, P., & Luman, M. (2018). COTAPP: Cognitieve taak applicatie. Handleiding. *[COTAPP: Cognitive test application. Manual].* Amsterdam, The Netherlands: Boom. [The norms of this test have been computed and are described by L. Voncken, S. Fleurke, and M. E. Timmerman]

Grob, A., Hagmann-von Arx, P., Ruiter, S., Timmerman, M. E., & Visser, L. (2018). IDS-2: Intelligentie- en Ontwikkelingsschalen voor kinderen en jongeren. *[IDS-2 Intelligence and Development Scales for children and adolescents].* Amsterdam, The Netherlands: Hogrefe. [The norms of this test have been computed and are described by L. Voncken and M. E. Timmerman]

Grob, A. & Hagmann-von Arx, P. (2018). IDS-2: Intelligence and Development Scales – 2. Bern, Switzerland: Hogrefe. [The norms of this test have been computed and are described by L. Voncken and M. E. Timmerman]

Tellegen, P. J., & Laros, J. A. (2017). SON-R 2-8: Snijders-Oomen Niet-verbale intelligentietest: III. Normtabellen. *[SON-R 2-8 Snijders-Oomen non-verbal intelligence test: III. Norm tables].* Amsterdam, The Netherlands: Hogrefe. [The norms of this test have been computed and are described by L. Voncken and M. E. Timmerman]