

# Measuring Unobservable Variables in the Social Sciences: Scale Development

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Unobservable variables (named constructs) are abstract variables, which cannot be observed and thus directly measured (De Vellis, 2003). Most phenomena of interest to the social and behavioural sciences— like beliefs, motivational states, expectancies, needs, emotions and social roles —are considered to be ‘unobservable’ variables. Such is the complexity for measuring these variables that an entire field of research, psychometrics, has emerged to address them (Borsboom, 2005). During this keynote we will try to learn how to measure unobservable variables, and we will point out mistakes often made when developing scales for quantifying such variables. A thorough review on this topic can be found at Diego-Mantecón et al. (2019). Please see the following link:

<https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0224696&type=printable>

## References

- Borsboom, D. (2005). *Measuring the mind: Conceptual issues in contemporary psychometrics*. Cambridge, UK: Cambridge University Press.
- De Vellis, R. F. (2003). *Scale Development: Theory and Applications (2nd ed., Vol. 26)*. Thousand Oaks, CA: Sage Publications.
- Diego-Mantecón, J. M., Blanco, T. F., Chamoso, J. M., & Cáceres, M. J. (2019). An attempt to identify the issues underlying the lack of consistent conceptualisations in the field of student mathematics-related beliefs. *PloS ONE*, *14*(11), e0224696. <https://dx.doi.org/10.1371%2Fjournal.pone.0224696>