

ABSTRACT

Since bias threatens the validity of a study, it should be avoided where possible. Across all phases of a research project, bias could be introduced, and in most situations the researcher has reasonable control over processes that may be the source of bias. However, within a quantitative research context in social sciences, where the opinions, attitudes and intentions of people are often sought, response styles patterns due to cultural background, for example, are not within the control of the researcher. Typical response style patterns include acquiescence bias, a tendency to be agreeable to statements, which could be more prevalent in certain cultural groups than other. Another response style pattern is extremity ratings, where respondents tend to avoid the middle categories and mark the scale extremes.

When practitioners sample respondents from different cultural groups, it is difficult, and depending on the research design, sometimes impossible to know whether significant differences are an artefact of substantive differences, or of differences in response styles. Adjusting scores for bias has a significant effect on the interpretation of research findings. To correct for bias, the method most commonly used to adjust scores within each cultural group is standardisation. In this research, SIMNORM, a target distribution estimation approach was used for the simultaneous estimation of a class of non-linear transformation functions that transform the *composite* scores within each cultural group to a standard normal distribution. SIMNORM was found to perform better than standardisation to obtain equivalence across cultural groups when *composite* scores are used.

In addition, SIMITNORM, an *item* normalisation approach was developed, which is a simultaneous non-linear transformation of *item* scores to a standard normal target distribution. The results of seven nested SIMITNORM models were compared to raw item scores and standardised scores, using a multi-group confirmatory factor analysis approach, a method that is suitable to test for construct equivalence, metric equivalence and scalar equivalence. SIMITNORM had significant advantages over standardisation as an approach to obtain equivalence over *items* in a set of data where bias is present.

Strasheim, C. (2008): *Simultaneous Normalisation as an Approach to Establish Equivalence in Cross-Cultural Marketing Research*, Unpublished PhD Thesis, Johannesburg: University of the Witwatersrand.