# Are gender differences in environmental values methodological artefacts? Factorial invariance of the 2-MEV across gender

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## Introduction

Gender differences in environmental values (EV) are a topic that has received much attention of scholars in the fields of environmental psychology, environmental sociology and environmental education. Woman or girls are typically shown to hold more pro-EV than men or boys: e.g. Blaikie (1992) showed that woman have higher scores on the one-dimensional NEP scale. By applying the two-dimensional 2-MEV scale (Bogner & Wiseman, 2006), Oerke and Bogner (2010; for adults) and Boeve-de Pauw and Van Petegem (2011; for children) showed that gender differences are more nuanced; the results of these studies showed no genders differences for preservation values (P), but higher utilisation values (U) for men/boys than women/girls.

As such group differences might also be explained by non-equivalency of the latent constructs, the current study addresses the factorial invariance of the 2-MEV. Two issues are central to the study:

(1) Does the 2-MEV measure EV invariantly across gender?

(2) Are the means of P and U invariant across gender?

## Method

In total 1285 children (age = 11.23±0.55; sex ratio = 0.96) from 59 schools in Flanders participated in the study.

EV were tapped using the 20-item version of the 2-MEV (Bogner & Wiseman, 2006), that was designed specifically to focus only on the second-order factors (values), without addressing first-order factors (attitudes).

Measurement and structural invariance models were fitted through Structural Equation Modeling using M*plus*. Corrections for the hierarchical and ordered-categorical nature of the data were included

## Findings and Discussion

The results of the study show that the framework of the 2-MEV with two higher order factors (preservation and utilisation) holds for boys and for girls: two separate CFAs showed that an item configuration was present that is invariant across gender.

When tested further for measurement invariance (through a multi-group CFA), both the preservation and utilisation dimensions were revealed to contain items that function differentially for boys and girls. When the factor loadings and thresholds were allowed to differ across gender, partial measurement invariance was established.

The results of structural invariance tests showed that the factor means of boys and girls for both the preservation and the utilisation dimension were invariant. In other words, boys and girls did not differ on either of the dimensions. This suggest that studies showing gender differences using the 2-MEV might be explained by differential item functioning rather than reflect genuine differences, and therefore be methodological artefacts.

## References

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