Suitability of Multiple Correspondence Analysis for a database exploration before inference analysis. Example with a driving simulator based study.

P. Simon*,,***. P. Loslever*,**,***.**
JC. Popieul*,,***. M. Roetting****.**

[*] Univ Lille Nord de France, F-59000 Lille, France, [**] UVHC, LAMIH, F-59313 Valenciennes, France
[***] CNRS, FRE 3304, F-59313 Valenciennes, France, [****] Department of Psychology and Ergonomics,
Chair of Human-Machine Systems, Technische Universität Berlin,Franklinstr. 28-29, D-10587 Berlin, Germany
(e-mail: philippe.simon@univ-valenciennes.fr)

Abstract: In most human component system studies performed in simulators, several factors (at least two, i.e. individual and time) and many variables are present. This article suggests starting the analysis while keeping *both* the multifactorial (MF) and multivariate (MV) aspects. To achieve this aim, with the possibility to show nonlinear relationships, a MFMV exploration of the experimental database is performed using the pair (*fuzzy space windowing*, *Multiple Correspondence Analysis)*. Then may come a inference analysis. This long (due to multiple large graphical views) but rich procedure is illustrated and discussed using a car driving study example.

Keywords: Multiple Correspondence Analysis, descriptive analysis, car driving, driving simulator.