The seminar will deal with methods and applications in comparative data analysis. Comparative analysis may be conducted across different countries, cultural or geographical groups, but also over different time points. For this purpose one may use different types of data sets, collected across the various groups, over time (in a panel or trend design) or a combination of both. Certain problems may be associated with such data, like different understanding of the questions, different response styles and different use of the scale. To cope with these problems, one needs to pay special attention to the measurement properties of the theoretical constructs used.

In the seminar we will learn tools how to conduct a cross-cultural analysis using structural equation modelling techniques. We will see how a causal theory can be represented by a path diagram and translated into a structural equation model, and how the model can be estimated and tested with the AMOS 17.0 computer program. We will deal with the measurement models relating single or multiple indicators to latent variables. Different specifications of measurement models are tested via confirmatory factor analysis as a special case of a structural equation model. A special focus is given to the use of multiple group confirmatory factor analysis (MGCFA) to test the equivalence (invariance) of measurement instruments over different countries and time points. Further topics include the assessment of model fit and model modification. Our exercises will be based on survey data.

Preparation before the course:
Read the preparatory literature provided via the “course material” link. The course material is password protected. To get access drop a short e-mail to datler@soziologie.uzh.ch

Course work:
Each student is expected to (a) download SPSS and Amos 17.0 on his or her laptop (if a student does not have his or her own laptop we will find a solution); (b) participate and do all the exercises (c) bring his or her own data (to include at least two cultures like countries or language groups) and test his or her research question. Finally, (d) each participant will present the results and write at the end of the semester a short essay which presents the research question/s and how they were tested (lengths of the essay: ~50000 signs = 20-25 pages).

Detailed program:

Part 1: Confirmatory Factor Analysis (CFA)

Week 2) Operating systematic of the software AMOS and the logic of its use. Preparation of data. Confirmatory Factor Analysis (CFA) with one measurement model with four indicators. Computation of exercise 1. Output interpretation.


Week 4) Preparation of exercise 2: congeneric, tau-equivalent and congeneric models; model modification; interpretation of modification indices; model evaluation.

Week 5) Estimation and identification in CFA. Model modification and the strategy of theory testing: New factors, new factor loadings or residual correlations. Global and detailed fit measures. Simultaneous Confirmatory Factor Analysis (SCFA) with multiple factors. Reliability and validity estimates in CFA. Variance decomposition. Multiple group comparison and interaction effects.

Week 6) Preparation of exercise 3: SCFA with several latent constructs. Examination of detailed and global model fit. Model modification and model comparison with a chi square difference test.

Week 7) Multiple group comparison and interaction effects. Conditions for comparability of theoretical concepts across cultures or over time. Higher-order factor models and MTMM-Models (Multi Trait Multi Method). Equivalent models.


Part 2: Structural Equation Models (SEM)

Week 9) Structural Equation Models (SEM) with latent variables and multiple indicators: Specification, identification and estimation. Causality and equivalent models. Typology of model testing. The „two step strategy“.


Week 11) Model testing and model modification. Detailed and global fit measures. Interpretation of parameters. Decomposition of effects. Multiple group comparison and interaction effects.


**Part 3) Participants’ models**

**Week 14)** Presentation of participants’ models. Open questions.

**Week 15)** Presentation of participants’ models. Open questions.

**Preparatory Literature**


**Proposed Course Literature:**

Books:
- Byrne, B. M. (2001 or 2009). Structural equation modeling with AMOS. Basic concepts, applications, and programming. London: Lawrence Erlbaum Associates

Papers:

Internet websites:
- Joining the SEMNET discussion group: http://www.gsu.edu/~mkteer/semnet.html