

## Pre-Conference Workshops 2021:

### Analyzing PIAAC data

October 5<sup>th</sup>-6<sup>th</sup>, 2021/ GESIS Mannheim

**Workshop:**

**Analyzing PIAAC data with structural equation modeling in Mplus**

**Lecturer:** Ronny Scherer (Centre for Educational Measurement at the University of Oslo)

**Date:** October 5<sup>th</sup> to October 6<sup>th</sup>, 2021

**Place:** GESIS Mannheim

**Content:** Structural equation modeling (SEM) represents a statistical approach to disentangle the relationships among latent and/or manifest variables, across groups, over time, and at different analytical levels. The potential of SEM has been recognized in many areas, including educational sciences, sociology, psychology, and business. This workshop provides an introduction to the principles and procedures of basic and more advanced SEM in the context of the international large-scale assessment PIAAC. Specifically, the following topics are covered: (a) Principles of structural equation modeling (model specification, identification, estimation, and evaluation), (b) Measurement models and confirmatory factor analysis, (c) Measurement invariance testing with few and many groups (including multi-group CFA, multilevel CFA, and the alignment method), and (d) Structural regression and indirect effects models (including multi-group and multilevel SEM). In a second part of the workshop, participants will present their own research or research ideas using PIAAC data and receive feedback on how to improve the analysis.

**Data:** PIAAC Public Use Files

**Software:** SPSS and Mplus

**Recommended reading:** Maehler, D. & Rammstedt, B. (2020). *Large-scale cognitive assessment: Analyzing PIAAC data*. Series: Methodology of Educational Measurement and Assessment (MEMA). Springer: Cham. <https://link.springer.com/book/10.1007/978-3-030-47515-4>

## Pre-Conference Workshops 2021:

### Analyzing PIAAC data

October 5th-6th, 2021/ GESIS Mannheim

#### Workshop:

#### Analyzing PIAAC and PIAAC-L data with Stata

**Lecturer:** Simon Wiederhold (Catholic University of Eichstätt-Ingolstadt) & Guido Schwerdt (University of Konstanz)

**Date:** October 5<sup>th</sup> to October 6<sup>th</sup>, 2021

**Place:** GESIS Mannheim

**Content:** The first part of the workshop will lay the conceptual foundation for the analysis of PIAAC and its longitudinal extension, PIAAC-L. In particular, participants will gain insights into how the data can be used to improve knowledge about the determinants and consequences of cognitive skills. Special emphasis will be on the possibilities of estimating causal effects. After this general discussion of the analysis potential of PIAAC and PIAAC-L, workshop participants will develop their methodological skills in analyzing the data in various applied sessions. Participants will acquire knowledge in both cross-sectional and panel data analyses. It is also discussed how regression results can be depicted graphically. In the second part of the workshop, participants will present their own research or research ideas with PIAAC(-L) data and receive detailed feedback on how to improve the analysis.

**Data:** PIAAC Public Use Files; German PIAAC Scientific Use File (doi: 10.4232/1.12660); PIAAC-L Scientific Use Files (doi: 10.4232/1.12925).

**Software:** Stata

**Recommended reading:** Maehler, D. & Rammstedt, B. (2020). *Large-scale cognitive assessment: Analyzing PIAAC data*. Series: Methodology of Educational Measurement and Assessment (MEMA). Springer: Cham. <https://link.springer.com/book/10.1007/978-3-030-47515-4>

*Note:* To participate in this workshop signing a PIAAC-L data use agreement is mandatory, in order to comply with the data protection regulations and to enable work with the data during the workshop.

## Procedure & Application

The PIAAC workshops welcome researchers from different disciplines interested to work or already working with PIAAC data (including supplement and longitudinal data on a national level). It is expected that the participants have good empirical knowledge and experience in the respective statistical software. The workshop comprises lectures and practical sessions covering the following elements: (a) Theoretical and methodological input from the lecturers (see description of contents above); (b) Research input from the participants, that is, presenting their own research or research ideas with PIAAC (-L) data; (c) Discussion of the questions outlined in the workshop regarding the data used and methods as well as specific feedback from the lecturers.

Interested researchers can apply with a short expose (max. 1000 words) of their research project/ questions based on the PIAAC data. The application also must include the title of the project, the specific dataset used, name, institute/ university affiliation, and contact information. Please send your application with the respective subject (“Application Workshop 2021 Analyzing PIAAC Data with SEM” *or* “Application Workshop 2021 Analyzing PIAAC Data with Stata”) to the Research Data Center (RDC) PIAAC (fdz-piaac@gesis.org) by March 30, 2021. There will be no participation fees. Each workshop will be limited to a maximum of 15 participants. In cases that workshops cannot take place at GESIS Mannheim, they will be conducted virtually. The confirmation of participation will be sent by April 30, 2021.

For any questions please contact the RDC PIAAC (fdz-piaac@gesis.org).