

WORKSHOP TITLE: Explanatory Item Response Models – IRT for Research

Presenters:

Johan Braeken & Stephan Daus

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Presenters' Bios (500 words):

Johan Braeken is an associate professor at the recently established Centre for Educational Measurement at the University of Oslo (CEMO). He got his PhD in Psychometrics under supervision of Prof. Francis Tuerlinckx and Prof. Paul De Boeck at the KU Leuven, Belgium. Before moving to Norway, he worked for 5 years in the Netherlands (i.e., Tilburg University, and brief stops at CITO and Wageningen University and Research).

Stephan Daus is a PhD student at CEMO and his research is concerned with investigating influential characteristics of items in standardized science assessments such as TIMSS or the Norwegian national orientation assessment. Ultimately, a better understanding of the items – the basic building blocks of a test – can inform future test designs for science assessment.

Why AEA members should attend this workshop:

Item responses are the most basic outcome data in educational assessment. Shifting focus from a traditional measurement perspective to a more explanatory approach can help to gain a better understanding of how these item responses arise as a function of item and person characteristics. Such an explanatory item response modelling approach opens up a whole range of possibilities especially in construct validation and investigations of item bias, but also in modern test design for constructing time-resistant item banks that do not even contain actual items. After attending the workshop, participants will have gained some additional inspiration for their own assessment and measurement practices and have taken a start at expanding their statistical analysis toolkit for categorical item response data.

Who this Workshop is for:

This workshop is aimed at those who wish to expand their measurement and data-analysis toolkit with modern IRT-based approaches. Some prior exposure to regression modelling can facilitate understanding, but no specialized prior knowledge is required to participate in the workshop.

Overview (500 words):

The workshop starts with introducing the idea of shifting focus from more descriptive measurement, as in traditional IRT, to a more explanatory measurement approach. We discuss some features and possibilities that are especially useful for educational research and modern test design. Before we go to lunch, a very general explanatory modelling framework for item response models is introduced and connected to familiar concepts in regression models.

After the lunch, a more hands-on session starts focussing on some example applications in the field of education. Participants will tackle both the implementation

of this modelling approach in free open-source statistical software as well as the interpretation of the results. Finally, the workshop will end with a discussion on further applications, challenges, and possibilities, in general and for your own work.

Preparation for the workshop:

For the hands-on session, bring along a laptop computer with the free open-source software R (see <http://cran.rstudio.com/>) pre-installed.

Schedule

Time	Session	Presenter
09.00	Coffee and registration	
09.30	Welcome & introductions Outline of the Workshop	Johan Braeken
09.45	IRT for research?	Johan Braeken
11.00	Break	
11.30	Explanatory IRT modelling framework	Johan Braeken
13.00	Lunch	
14.00	Applications I (Hands on Session)	Johan Braeken, Stephan Daus
15.30	Break	
15.45	Further Applications & Discussion	Johan Braeken, Stephan Daus
16.30	Workshop close	-