Applications of Item Response Theory

Why you should attend this workshop:
The workshop will offer an introduction to item response theory (IRT) and applications from a practical point of view. IRT is used for many measurement applications including item banking, test construction, adaptive test administration, scaling, linking and equating, standard setting, test scoring and score reporting. Main features of these applications will be addressed in the workshop. Participants will be able to understand and assess the usefulness of IRT in their own work.

Who this Workshop is for:
The workshop is aimed at those who want to know more about IRT with a focus on applications. Participants might be novice ore more experienced user. No prior knowledge is required to attend the workshop. Participants will practice using the software for some examples and are invited to bring their own laptops for practicing (Windows).

Overview:
IRT is used to analyse response data at the item level. Unlike classical theory it does not solely construct and analyse fixed tests forms administered at one occasion. IRT is the theoretical framework which can be used in modern times where assessments are often based on different tests on different occasions. In IRT characteristics of items and examinees are estimated and defined is how these characteristics interact in describing item and test performance. When used properly IRT can increase the efficiency of the testing process, enhance the information provided by that process, and make detailed predictions about unobserved testing situations.

The first session of the workshop starts with some theory, including a comparison of IRT with classical test theory. Major properties of IRT will be highlighted using illustrative examples. IRT output will be explained, discussed and interpreted based on materials that will be provided. Several concepts used in IRT will be explained using examples from the test construction experience of the presenters and, when available, from participants.

In the second session participants will, hands on, detect main features of IRT through performing some exercises

The third session is a short theoretical introduction in Computerised Adaptive Testing. The goals and usefulness of simulations for constructing CATs will be discussed. The measurement characteristics of a CAT can be studied and set before publishing it. Information can be collected by simulation studies that use the available IRT calibrated item bank and the proposed target population. The performance of proposed selection algorithms and constraints can be studied. Customized software will be distributed (Windows) and used by participants to determine the measurement characteristics in CAT.

In the final workshop session the reporting of IRT results will be presented. Examples from student monitoring systems as developed by Cito will be discussed.

Preparation for the workshop:
No special preparation is required. The workshop format will be interactive allowing participants to discuss their own experience and/or problems. If available, participants are encouraged to bring their own data and analyses for discussion. It is the belief of the workshop leaders that sharing experience in applications will

stimulate and enable participants in solving educational measurement problems that they encounter in their practice or anticipate encountering.

Schedule

Time	Session	Presenter
09.00	Coffee and registration	
09.30	Welcome & introduction Outline of the workshop	Theo Eggen and Frans Kleintjes
09.45	Introduction to Item Response Theory	Frans Kleintjes
11.00	Break	
11.30	Main features of IRT – Hands on session	Frans Kleintjes
13.00	Lunch	
14.00	Computerised Adaptive Testing Theory and hands on simulations	Theo Eggen
15.30	Break	
15.45	Using IRT features in reporting	Theo Eggen and Frans Kleintjes
16.30	Workshop close	