

## Abstract

The primary aim of the workshop, which includes the morning and afternoon sessions, is to provide participants the necessary practical experience to use cognitive diagnosis models (CDMs) in applied settings. Moreover, it aims to highlight the theoretical underpinnings needed to ground the proper use of CDMs in practice.

In this workshop, participants will be introduced to a proportional reasoning (PR) assessment that was developed from scratch using a CDM paradigm. Participants will get several opportunities to work with PR assessment-based data. Moreover, they will learn how to use GDINA, an R package developed by the instructors for a series of CDM analyses (e.g., model calibration, evaluation of model appropriateness at item and test levels, Q-matrix validation, differential item functioning analysis). To ensure that participants understand the proper use of CDMs, the theoretical bases for these analyses will be discussed.

The intended audience of the workshop includes anyone interested in CDMs who has some familiarity with item response theory and R programming language. No previous knowledge of CDM is required. By the end of the session, participants are expected to have a basic understanding of the theoretical underpinnings of CDM, as well as the capability to conduct various CDM analyses using the GDINA package.