# Abstract for the Keynote Presentation

## Problem Solving in the 21st Century: Innovations in Assessment and Psychometric Modeling

### Abstract

In 21st century education, students are required to build up transferable competences that can be applied in both domain-general and domain-specific contexts (Pellegrino & Hilton, 2012). Specifically, they are supposed to think critically, retrieve and evaluate information from multiple sources, collaborate, and solve complex problems (Binkley et al., 2014). In this context, complex problem solving has gained importance, as it is considered to be a crucial educational outcome that predicts students' achievement in various domains. In particular, this importance has been recognized in the Programme for International Student Assessment (PISA; OECD, 2014).

The keynote presentation will focus on the concept of complex problem solving, its conceptualization, assessment, and psychometric modelling. Moreover, making use of the data that can be obtained from innovative computer-based assessments of the construct will be emphasized. Finally, future directions of research on the measurement of 21st century skills are proposed.

### Short Bio

Ronny Scherer currently holds a postdoctoral fellowship at the Centre for Educational Measurement at the University of Oslo (CEMO) in Norway. His research mainly focuses on the development and evaluation of computer-based assessments in the domains of problem solving and science education. Moreover, he works on ways to measure complex cognitive and non-cognitive constructs that play an important role in 21st century education (e.g., adaptability, perseverance). In order to study which factors determine the development of such constructs, he also focuses on teachers' instructional practices, attitudes, self-beliefs, and integration of modern technologies in classrooms. Ronny obtained his PhD in science education from the Humboldt-Universität zu Berlin in Germany.