

Education in the Arts (BEA) be a tool for strengthening the process of democratization in contemporary Finnish society?

## Session D 6

30 August 2017 10:15 - 11:45

Linna - Väinö Linna (K104)

Single Paper

Assessment and Evaluation

### Assesment and Evaluation

**Keywords:** Achievement, Assessment methods and tools, Cognitive development, Motivation, Primary education, Qualitative methods, Quantitative methods, Reasoning, Science education, Secondary data analysis, Teacher Effectiveness

**Interest group:** SIG 01 - Assessment and Evaluation

**Chairperson:** Tsafirir Goldberg, University of Haifa, Israel

### The modelling of teachers' judgment in summative assessment practices

**Keywords:** Assessment methods and tools, Primary education, Qualitative methods, Teacher Effectiveness

**Presenting Author:** Lucie Mottier Lopez, University of Geneva, Switzerland; **Presenting Author:** Lionel Dechamboux, University of Geneva, Switzerland

Our research examines the construction of meaning during summative assessment practices with respect to predefined assessment criteria and other emerging referents. The purpose is to model the dynamic and logic of the teachers' judgment in practice, in particular in case of hesitations and when the teachers authorize them to make adjustments during grading-process. First, we use a conceptual framework developed in the French-speaking community of researchers in assessment in education, that takes into account the relation between assessment criteria (called "referents", components of assessment frame of reference) and observables or signs in the student's answer selected by the assessor (called "referes", Hadji, 1989). Processing of assessment reference is called "referentialization" (Figari & Remaud, 2014), for instance when new meaning of pre-defined assessment criteria emerged during grading process. Secondly, we interpret the phenomena of referentialization we observed with respect to a professional judgment perspective (Lafortune & Allal, 2008). Our results will show how pre-existent and emergent referents are differently located during the teachers' activity of referentialization, between interpretation and decision-making processes. The kind of triangulation between these referents seems to characterize different profiles of teacher-assessor. We will discuss these profiles, in particular according to the validity of consequence of the assessment.

### Development of achievement and test taking behavior – a class-centered analysis

**Keywords:** Achievement, Assessment methods and tools, Motivation, Secondary data analysis

**Presenting Author:** Risto Hotulainen, University of Helsinki, Finland; **Co-Author:** Sirkku Kupiainen, University of Helsinki, Finland; **Co-Author:** Mari-Pauliina Vainikainen, University of Helsinki, Finland; **Co-Author:** Pirjo Lindfors, University of Tampere, Finland

In Finland, differences between schools have been one of the lowest in the OECD according to several PISA studies, but there is much less research on within-school effects in Finland, with only a few exceptions. These studies have shown that there are considerable class level differences on both school achievement and scientific reasoning. Aim of this aim of this study was to detect if development of class-level academic achievement from 7th to 9th grade between classes differ and if yes, the second aim was study if there are between class-level differences in motivation and social capital. Two theories provided ground for the chosen approach: Achievement goal orientation theory and the Theory of social capital including both classroom and family social capital. The final study population filling out the questionnaires and achievement tests (math and reading) in 2011 (7th grade) and 2014 (9th grade) contained 5219 students (51.3% girls) from 462 classrooms and 117 schools. Latent profile analysis and ANOVAs were executed with aggregated class level data. The results showed that based on repeated achievement measures, it was possible to find three class achievement profiles: P1: increasing (69 %), P2: moderate (19 %) and P3: decreasing (13 %). Class profiles differentiated both in motivation and social capital (both classroom and family social capital). This study showed that the development of low-stake test achievement and behavior is associated with class level goal orientations and social capital.

### Relationship between scientific and inductive reasoning in grades 5 and 7

**Keywords:** Cognitive development, Quantitative methods, Reasoning, Science education

**Presenting Author:** Erzsébet Korom, University of Szeged, MTA-SZTE Science Education Research Group, Hungary; **Co-Author:** Mária B. Németh, MTA-SZTE Research Group on the Development of Competencies, Hungary; **Co-Author:** Attila Pásztor, MTA-SZTE Research Group on the Development of Competencies, Hungary; **Co-Author:** Benő Csapó, University of Szeged, Hungary

This study reports the first results of a project, which investigates the relationship between general thinking skills, scientific reasoning and motivation to learn sciences. The purpose of this paper is (1) to examine the development of general thinking skills and scientific reasoning between grades 5 and 7, and (2) to explore the relationship between inductive and

scientific reasoning. The sample included 53-53 classes from 52 Hungarian schools (grade 5: N= 549, males 49.9%, grade 7 (N=551, males 47.7%). An online test was developed to assess scientific reasoning (Cronbach's alpha grade 5: .76; grade 7: .84). In order to complete the tasks students had to operate different thinking processes such as conservation; proportional, correlational, probabilistic reasoning and classification skills in science context. The domain-general online inductive reasoning test comprised 55 items with four subtests: 15 figural series, 15 figural analogies, 14 number series and 11 number analogies (Cronbach's alpha was .90 in both grades). Results indicate that students' scientific reasoning skill changed significantly between the two school years. The correlation between scientific reasoning and domain general inductive reasoning was stronger in grade 7 ( $r_{\text{grade5}}=.40$ ,  $r_{\text{grade7}}=.62$ ). Linear regression analyses showed that inductive reasoning explained 39.7% of variance in grade 7 and 16.3% of variance in grade 5. Our results highlight the importance of improving reasoning through the content of teaching in everyday school practice.

#### **Online assessment of scientific reasoning and motivation to learn science: a pilot study in Namibia**

**Keywords:** Motivation, Quantitative methods, Reasoning, Science education

**Presenting Author:**Linus Kambeyo, University of Szeged, Hungary; **Co-Author:**Attila Pásztor, MTA-SZTE Research Group on the Development of Competencies, Hungary; **Co-Author:**Erzsébet Korom, University of Szeged, MTA-SZTE Science Education Research Group, Hungary; **Co-Author:**Mária B. Németh, MTA-SZTE Research Group on the Development of Competencies, Hungary; **Co-Author:**Benő Csapó, University of Szeged, Hungary

**Abstract** The purposes of this study were to explore the possibilities of online assessment and to investigate the relationship between scientific reasoning and motivation to learn science in Namibia. The sample of the study was drawn from the fifth (N=275) and seventh graders (N=346). The online assessment tool for scientific reasoning skills consisted of 36 items with 16 tasks assessing conservation; proportional, correlational, probabilistic reasoning and classification skills in science context. The Science Motivation Questionnaire II. (SMQ, Glynn et al., 2011) was also applied. The eDia platform was used to collect the data. Learners were ferried from their schools to the University of Namibia's ICT rooms. Due to the low reliability in grade 5 (Cronbach alpha=.64) we excluded them from further analyses. For grade 7 Cronbach alpha=.70. The tasks were moderately hard for the students:  $M=40.56\%$ ;  $SD=13.47\%$ . One-parameter Rasch analyses showed that there were few items for differentiate students at low skill levels. The reliability of the SMQ was good, Cronbach alpha=.91. Average scores were relatively high, thus, students reported that they are motivated to learn science. Except self-efficacy significant ( $p$

#### **Session D 7**

30 August 2017 10:15 - 11:45

Virta - 109

Single Paper

Teaching and Teacher Education

#### **Teaching and Teacher Education - J**

**Keywords:** Bilingual education, Educational Psychology, Language (Foreign and second), Motivation, Pre-service teacher education, Reading comprehension, Science education, Self-regulation, Teacher Professional Development, Teaching / instruction, Video analysis

**Interest group:** SIG 11 - Teaching and Teacher Education

**Chairperson:** Kristina Kögler, Germany

#### **Linking Instruction and Student Achievement to Reading in English as a Second Language**

**Keywords:** Language (Foreign and second), Reading comprehension, Teaching / instruction, Video analysis

**Presenting Author:**Lisbeth M Brevik, University of Oslo, Norway

This study follows teachers and students in seven classrooms at seven different schools across three school years, by identifying components of classroom practices that can be related to reading achievement. The study combines achievement data (national English reading tests), instructional data (video observations from English lessons), and student survey data (perceptions of their English instruction). The findings indicate low quality English instruction; evidence of implicit rather than explicit reading strategy use and instruction; and that while the majority of the students expressed satisfaction of the support they received in their English lessons, the observed support was primarily given in the first language aimed at the poor readers. This study contributes with systematic findings of what characterizes second language reading instruction.

#### **Effects and Surprises of Teaching Biology in a Foreign Language**

**Keywords:** Bilingual education, Language (Foreign and second), Motivation, Science education

**Presenting Author:**Pablo Pirnay-Dummer, Brandenburg Medical School Theodor-Fontane, Germany; **Co-Author:**Bonny Jänicke, Martin-Luther-Universität Halle-Wittenberg, Germany

Didactics often assume cognitive and motivational effects within properly conducted bilingual classroom settings for STEM-education, where a science is taught in a foreign language, which the students also learn at school. This quasi-experiment investigates commonly assumed effects on grades, grade change, motivation, interest and self-concept within a full-semester six point repeated measurement design with eight-graders ( $n=51$ ). While none of the often-predicted effects on