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EARLI SIG 1: ASSESSMENT AND EVALUATION
Helsinki, 29-31 August, 2018
Assessment & Learning Analytics

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Conference Time: 02/Sep/2018 6:10:36 pm EEST

Conference Agenda

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Session Overview

Session

C: Paper Session 2: Large-scale assessment
Time: **Wednesday, 29/Aug/2018: 4:15pm - 5:45pm**
Session Chair: **Prof. Juhani Rautopuro**, University of Jyväskylä

Location: **Room 302**
Third Floor

Presentations

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Language influence on mathematics achievement in French-German biliterate ninth graders

<u>Sophie Martini</u>, Sonja Ugen
University of Luxembourg, Luxembourg Center for Educational Testing, Luxembourg

Cross-linguistic studies show that language affects numerical cognition and subsequent mathematical learning, which is especially relevant in multilingual educational contexts. Luxembourg is multilingual, as the mathematics teaching language changes from German to French in grade 7 and students' home languages differ. In this study we analysed the results of the Luxembourgish national standardised tests, taken by ninth graders (N = 4102), who could choose and continuously switch between test languages (German and French). We analysed reading comprehension skills (German/French) and socio-economic status (SES) as predictors for mathematics achievement for pupils from multiple home language backgrounds. Our results show significant differences in French, German and mathematics test achievement and test language choice between students from different home language groups. Additionally, SES and reading comprehension in the test language are significant predictors for mathematics achievement. This indicates that proficiency in the instruction and test language matter for mathematics achievement and should be considered in a multilingual setting.

The quality of matriculation exams of biology – what is actually measured?

Sara Lindholm, Anna Uitto, Henna Asikainen
University of Helsinki, Finland

The national Finnish Matriculation Examination is a national examination taken at the end of the upper secondary school. The aim of this study was to explore the quality of test questions and their relation to students' outcomes in the biology matriculation examination. The data of this study comprised matriculation examination from spring 2011 to spring 2015 (9 exams, 108 questions). Totally 22 777 students (9644 male) participated the examinations. The deductive content analysis was used to categorize the knowledge and cognitive domains, biology syllabus core contents and task types. Multivariate variance analysis was used to examine the effects of the core contents, task types and the knowledge and cognitive dimension levels on the students' scores. Also differences between gender was analyzed. The results showed that the majority of the questions dealt with molecular and cell biology, but students' most frequently chose questions concerning evolution. The main emphasis in the knowledge and cognitive dimension in the questions was in the understanding of conceptual knowledge, none of the questions measured higher cognitive levels "create" or "analyze". Task type of the question explained most of the variance of students' question scores. Students succeeded best in questions which required applications of conceptual and procedural knowledge. The girls mastered biology generally better than boys, but some differences were found. The results suggest that the questions of biology matriculation exams should be more versatile regarding to the knowledge and cognitive dimensions levels and biological core contents.

Entering school with equal skills? A two-country comparison of early inductive reasoning

Risto Hotulainen[1], Attila Pásztor[2], Sirkku Kupiainen[3], Gyöngyvér Molnár[4], Benő Csapó[5]
[1]University of Helsinki, Finland; [2]University of Szeged, Hungary; [3]University of Helsinki, Finland; [4]University of Szeged, Hungary; [5]University of Szeged, Hungary

Explanations for between-country differences in international large-scale assessments such as PISA are often sought among factors regarding primary and lower secondary education. A growing body of research indicates, however, that children enter formal education with widely varying skills and knowledge. In the present study, we look at the general thinking skills of students in two linguistically related countries, Finland and Hungary, with a relatively similar, not strongly academically oriented early education, mandatory in Hungary from age 3 on but in Finland only from age 6 on in international large-scale assessments. For the comparison, a figural test of inductive reasoning, administered online, was used, based on the key role of inductive reasoning in all learning. The samples for the study were drawn from preschool (kindergarten) children in the two countries (average age=6 years, N=1264 for the Finnish sample; N=284 for the Hungarian sample). The online test was administered in group setting via eDia with instructions via headphones, on tablets in Finland and on computers in Hungary, containing figural series and figural analogies. The Finnish pre-schoolers performed significantly better that the Hungarian (Finland M=36.6%, SD=22.6%, Hungary M=29.2, SD=21.4; t=2.352, p=.019). Standard deviations indicate large individual differences in both countries. The result is contrary to our hypothesis of no significant difference. Possible reasons for and implications of the results will be discussed further in the presentation.

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