# *Abstracts*

**Gabriella Agrusti, *Back to learning outcomes. Changes in primary school assessment***

Recent changes in Italian regulations on how to express primary school students' assessment results led to a reconsideration of the role of learning outcomes. The study offers an overview of the main innovations introduced and the results of a set of trials carried out with a sample of over 800 primary school teachers on the correct formulation of learning outcomes. Among the main mistakes in selecting representative learning outcomes, there is the confusion between educational goals and observable instructional objectives, the use of verbs that require further clarifications either or the reference to too specific formulations, essentially reproducing the assessment task level.

*Keywords*: primary school, Italy, assessment, learning outcomes, teachers' professional development.

**Elisa Guasconi, Andrea Ciani, Ira Vannini, *Formative assessment practices in lower secondary school to promote students' learning. First exploratory analyzes of a quasi-experimental design***

The article presents the results of a three-year research project aimed at investigating the effectiveness of formative assessment practices in classroom on middle school students' reading and mathematical abilities. In line with the debate on formative assessment, practices and indicators of the skills to be measured were identified: they derived from the recent most acknowledged construct. A quasi-experimental research design was planned: a group of lower secondary school teachers of the same class experimented with formative assessment practices with their students while supported with in-service training

activities followed by the researchers. Pupils of the parallel classes belonging to the same institution constituted the control group. A measurement of math and comprehension abilities was conducted at the beginning and the end of the experimentation through standardized tests; students' perceptions of the teaching-learning process were collected through administering a questionnaire. Data show significant differences between the two groups' learning achievements, especially in math abilities. The most comprehensive interpretation of these results leads us to consider the explorative feature of the study: indeed, several factors have affected the internal validity of the experimentation. At the same time, the research's design limits offer a relevant opportunity to reflect on the need to find a more precise definition of the hypothesis for future studies.

*Keywords*: successful teaching, formative assessment practices, students' achievements, lower secondary school, quasi-experimental research design.

**V. Damiani,** ***Classroom assessment and teachers' professional development. Experience from a teacher training course in secondary schools before and during the Covid-19 outbreak***

This contribution presents a reflection on teachers' professional development regarding classroom assessment, which emerged from the experience of a training course carried out for a network of secondary schools in Rome in 2019/2020, that was interrupted due to the COVID-19 outbreak, and from a follow up group interview, carried out at the end of the school year to discuss teachers' perspectives and experience related to assessment during online teaching.

In this paper, remote schooling is considered as an occasion in which, due to the inefficacy of traditional teaching methods and tools, teachers were asked to make a change within highly established practices.

The reflections on assessment arise from the integration between the face to face teachers' training and their experience during the pandemic on online teaching, highlighting key aspects and challenges that characterise classroom assessment in secondary education in Italy and suggesting further development for future in-service training activities.

Results highlight the need to focus teacher professional development on some key elements related to classroom assessment (in terms of item writing, validity and reliability, for instance), that emerged as critical issues from the training course, and on the intersection between teacher practices and assessment methodologies and tools.

*Keywords*: classroom assessment, Covid-19, Italy, remote schooling, online teaching.

**Francesco Agrusti, Cristiano Corsini, *An exploratory survey on higher education exams in a distance education environment***

Since March 2020, the pandemic has forced schools and universities to suddenly move examinations and lectures to remote locations. In order to generate useful knowledge to inform practices in a situation characterised by the sudden transfer to remote locations of activities and processes that until a few days before took place in presence, the Teachers-Students Commission of the Department of Education Sciences of the University of Roma Tre partially revised the traditional approach, introducing two questionnaires: on the one hand, the aim was to detect the students' beliefs about distance teaching (DaD) and its delivery methods, and on the other hand, the aim was to detect the views and opinions about the conduct of distance examinations (EaD).

In this paper we consider the beliefs and opinions of 250 students regarding the EaD, trying to understand how the offer of profit exams has been used and evaluated by the students enrolled in the various degree courses.

*Keywords*: distance education, assessment, exam proctoring, higher education, student perceptions

**Ximena Toalongo-Guamba, Ángel Alsina, César Trelles-Zambrano, María Salgado, *Creating the first mathematical models: analysis of a modeling cycle from a real problem in Early Childhood Education***

The modelling process carried out by 19 children aged 5-6 years in the context of a real problem is analysed to understand how temperature works and how it is measured. To carry out the analysis, the previously validated instrument "Rubric to Evaluate Mathematical Modeling Processes" (REMMOP) is used, which includes seven components related to the modeling cycle (understanding, structuring, mathematization, mathematical work, interpretation, validation and presentation) and the corresponding indicators. The results show that, during this cycle: 1) children develop a first model to determine where the numbers are on the thermometer and how they are interpreted, based on the mathematical knowledge they mobilize; 2) they present important deficits especially in the last phases of the modeling cycle. It is concluded that it is necessary to promote the professional development of teachers to incorporate this type of activity from an early age.

*Keywords*: mathematical modelling, modelling cycle, assessment in mathematics, teaching practices, Early Childhood Education.

**Elisa Caponera, Laura Palmerio, *Do parents count for their children's mathematics achievement?***

The purpose of this study is to evaluate the relationship between parental involvement and student mathematics achievement using a structural equation modeling approach. Data from a representative sample of fourth-grade students, and their parents, from 14 different European countries participating in TIMSS (Trends in International Mathematics and Science Study) were analyzed. The model was successful in explaining the TIMSS scores in mathematics: the predicted model showed a good fit to the data, with 31% of the variance explained.

The results showed that SES contributed to the prediction of performance in mathematics. However, the results showed also the positive and significant effects of parental involvement factors – especially parental expectations for their children's academic attainment – mediating the relationship between SES and TIMSS math achievement. Thus, increasing parental participation could be a useful intervention to reduce SES-related differences in performance.

*Keywords*: parental involvement, TIMSS, mathematics achievement, path model, mediation effects.