# How the Absence of Higher PISA Scores is Connected to the Science Classroom?

Dace Namsone
Liga Cakane

University of Latvia, Latvia

This research is supported by National Research Program Project VPP 2014-2017

Contact: dace.namsone@lu.lv; liga.cakane@lu.lv

## Abstract

The education reforms in Latvia have set direction towards promoting students` competencies (critical and analytical thinking, learning, creativity, etc.). In science teaching and learning practice this means significant changes on the classroom level. Reforms in the country are influenced by OECD PISA research. Latvian students' performance in PISA in science shows a gradual increase, but the number of students who show high level output is insufficient. There is a lack of students' mastery of higher order cognitive skills (HOCS). The focus of the research is to look at the students' learning in science classrooms according to the selected criteria: HOCS, presence of learning outcome and feedback. Lesson observation and analysis as well as analysis of documents were used. The observed physics, chemistry, biology and science lessons show the trend that students have limited possibilities to mastering the skills specified in the education policy regulations in a classroom (for example, presence of HOCS in only in 19% of lessons). A focus on low order cognitive activity in the lessons may be one of the significant reasons why students fail higher levels of PISA tests. The reasons are connected to teachers' skills to implement teaching and learning strategies in order to develop HOCS as well as learning skills that are new for them. There is a necessity for teachers' professional development to close the gap between the content of education documents and a classroom practice.


*Keywords:* education reforms in Science, HOCS, teaching and learning, lesson observation