

**USAGE OF MATHEMATICS COMPETENCY IN A NEW CONTEXT IN SCIENCE.
EXPERIENCE OF LATVIA**

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Goal of the research is to conduct deepened analysis using the experience acquired in mathematics lessons (computation of percentages and computational speed) in a new context in science lessons in Latvian schools. It is important to complete this investigation before implementation of the new educational reforms. The research analyzed students' papers, results, and study aids, as well as teacher performance in lessons. The research concluded that the focus should be on collaboration between mathematics and science teachers and a joint understanding of how to teach to students to transfer skills that must be used in a new context.

The new curriculum reforms in Latvia have been in development since 2015. They are following the current international tendency and introduce competency based learning. Acquisition of competencies is related to a deepened learning process during which students develop their skills to generalize or transfer new knowledge and skills to unknown situations. This is accomplished by primary emphasis on processes that help to acquire knowledge (how we know), rather than a focus only on accumulated subject matter content (what we know).

Research questions: 1) How well do 9th grade students succeed in applying skills acquired from mathematics lessons in the context of science subjects? 2) How are the applied skills taught in the study process in mathematics and science subjects in compulsory education?

Research tools: Results of National testing papers for 9th grade, analyses of students' papers, study aids; lesson transcripts.

The research concluded that student achievement in Latvia is poor in assignments where students need to apply mathematical skills in the context of a science subject matter. The achievement is poor although the curriculum requires this to be learned in several grades and in several subjects. Analyses of papers show that a large segment of pupils search for a mathematical solution of the problem and do not apply problem-solving strategies taught in science lessons. Analysis of study aids and lessons show that through a misunderstanding of the essence of the deepened learning process, teaching has become too formal and has strayed from the pedagogical theory, failing to give students a unified understanding of the usage of particular strategies in new situations. The solution is to facilitate collaboration between mathematics and science teachers, and to emphasize a learning approach where students recognize how to approach the problem through the application of previously acquired skills in a new setting, instead of just recognizing the problem and applying their old problem solving skills (this is a similar problem to that.....).

References

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