Didactical design for the mathematics classroom

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In this lecture, principles behind the design and implementation of mathematical tasks in the LaUDiM project will be explained, and findings from the project will be discussed. Instructional design in the project is rooted in the Theory of Didactical Situations in Mathematics (TDS), with an adapted methodology of didactical engineering. Comparison of *a priori* and *a posteriori* analyses of two didactical situations at Grade 3 will be presented, where the mathematical concepts dealt with are geometry (classification of polygons) and multiplication (modelling situations involving equal-sized groups). One situation illustrates how the progress of mathematical knowledge in the classroom is related to the evolution of the *milieu.* The other illustrates the teacher's role in the *institutionalisation* of knowledge. Based on the analysed situations, the lecture concludes with a reflection on how TDS can be used as a tool for the teacher and researcher to understand and develop mathematics teaching practices by posing questions for observation and analysis of these practices.