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THALES DID NOT HAVE DGS

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This paper describes episodes arising in a geometry lesson in a grade 12 class in Norway. In accordance with the new syllabus, the teacher has introduced a dynamic geometry software program which is new to both the students and the teacher. Each student has their own laptop and the classroom is equipped with a blackboard, screen and projector. The students have used the laptop in mathematics classes for over one year.

The class is working on exercises consisting of basic constructions and applications of Thales' Theorem. The teacher is also introducing the concept of locus. In the course of the lesson three students come forward to demonstrate to the class their solution to two different problems. This reveals that students' understanding of the nature of the mathematical task and what constitutes a solution to the problem is quite different from that of the teacher. The teacher's goal is geometrical construction and mathematical reasoning while the students appear satisfied with the production of a drawing. An interesting discussion between the teacher and the students then arises where the teacher must quickly justify his position as regards both the nature of the task and what constitutes a solution. The question under consideration here is how the introduction of the dynamic software altered the mathematical and didactical nature of the task. The students appear to grasp only the pragmatic value of the task whereas the teacher is focussing on its epistemic value. A conclusion drawn from the data, which also included discussion with the teacher team afterwards, was that traditional mathematical tasks cannot be automatically transposed to the new computer environment. This has implications for teacher practice.

The theory of instrumentation, as developed mainly in French didactics, provides a framework to analyse both teacher and student action in the classroom.