



Working Group

THE IMPACT OF DIGITAL TOOLS ON STUDENTS' LEARNING OF GEOMETRY

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The integration of digital technology into the mathematics classroom is an ongoing process (Labbord & Straber, 2010, p. 122) which follows the national tendency in different countries. The professional literature indicates that combined mathematics teaching technology tools help in the process of constructing an abstract knowledge of mathematics, and geometry in particular (Lagrange, J.B. et al., 2003). Based on this idea, the Center for Educational Technology (CET) developed a one-year course devoted to the subject of studying geometry using an interactive online geometry environment. The observed students' work and performance were varied and interesting.

In the proposed working group we suggest to focus on students' learning of definitions.

During the course, we observed that students' learning process towards constructing concept definition includes the following stages: initial experience to defining, attempting to define well, and using the definitions in problem solving (including proofs by contradiction) with the purpose of consolidating the concept.

Based on these observations and on the gathered empirical evidence, we can raise several questions for the working group to discuss regarding the impact of digital tools on students' learning of geometry as follows:

- 1. How does the process of concept definition construction occur in a student's mind? What is the cognitive path from concept image to concept definition?*
- 2. What are the tools students use on the path and what are the stages they pass in an interactive dynamic environment?*
- 3. Should we distinguish individual knowledge and shared knowledge? If yes – how?*

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