

GeoGebra role in building mental models and improving computational thinking skills

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Abstract:

Computational thinking is regarded as one of the most important skills in modern world. It is defined as the ability to formulate a problem and express its possible solutions in such a way that a computer can effectively carry it out. In recent years there is big movement aimed at including computational thinking in school curriculum. In our talk will stress out the importance of creating mental models and visualization in computational thinking process and how mathematical education and programs like *GeoGebra* can enhance ability to create, manipulate and verify mental models. Finally, we will show how this process leads to improvement in computational reasoning. Mental models are used to represent knowledge both of concrete facts, like the movement of physical objects, such as a throwing a ball, or more abstract processes, such as behavior of electrical current or assessing the abstract ideas like justice or freedom. The process of acquiring mental models differs from individual to individual, but in a typical school teaching practice, there is little room for elaboration on those differences. In this talk we will stress out the importance of organizing the learning environment which enables creating individual mental models and we will do so on the basis of examples from the *GeoGebra* software.