Physics Teaching in Secondary Schools with Interactive Simulation tools Algodoo, Step and Physion

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We present three similar simulation software tools: Algodoo, Step and Physion; all converse three-dimensional phenomena into two-dimensional presentation, which is of great importance in teaching physics in particular in secondary schools. Such simulation software tools enable teacher and students to insert simple objects (squares, circles, springs…) into a simulation environment (virtual space). After the simulation is started the inserted objects begin to move regarding correlating interactions, determined by physical model of the simulation. All three software tools are firstly introduced and then we present the simulation construction processes of the same physical problem in all simulation environments. We also analysed this software in context of physics teaching to show their versatility in use at secondary school level. We analysed the primary and secondary school physics curriculums and gave suggestions on suitability of individual topics for application of simulations. The three presented simulation programmes are compared based on the criteria arising from classroom application. The results of simulation software comparison, their practicability and ideas on simulation use, presented in this work, enable teachers to easily decide which simulation environment they will use in their lessons.

Ključne reči: conceptual approach, ICT, simulation.