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LEARNING PHYSICS INSIDE VIRTUAL REALITY GUIDED BY GENERALIZED PLANS OF A.V. USOVA

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Abstract

The paper deals with deep pedagogical idea of A.V. Usova: the key to learning physics is universal mental structures (generalized plans) that correspond to various types of physics knowledge and research activities. The generalized nature of her plans allows us to rely on them in various fields of physics education and in a range of learning situations. Generalized plans afford us the clearest way of thinking about the system of knowledge, learning skills, pedagogical experimentations, and educational interdisciplinarity. The rise of generalized plans is, of course, an excellent illustration of the unification carried out by a brilliant educational scientist. This is one of the best examples of the long-term worth of some pedagogical ideas. Of course, general plans are not the final solution to the problem of teaching physics, but their success testifies to their deeper meaning. They are easily applicable to new teaching and learning technologies and quickly adapt to them. When virtual reality was allowed to inject a bit of novelty, presumed to be the new active ingredient in the educational process, it reignited old debates about the nature of teaching and learning. VR technologies offer to teachers and students a remarkable tool that allows them to visualize physical entities, objects, phenomena, instruments, laws and theories, as well as the learning environment in a three-dimensional virtual space. Virtual reality applications based on generalized plans

become a universal tool for teaching and learning physics, allowing students to visualize the complicated conceptual structure of physics. There are natural characteristics that we have come to expect from an educational invention with a chance of being correct: savings in time, resources, and a certain inner elegance. In this sense, the generalized plans correspond to the style of the information age, the needs of students and the high requirements for teaching physics.

Keywords:

Generalized Plans, History of Education, Scientific Knowledge, Physics Teaching, Physics Learning